This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

MEDICAL LIFE

IN THE NAVY

D0013052H

600013052H

MEDICAL LIFE IN THE NAVY.

By W. STABLES, M.D.,

ASSISTANT-SURGEON, R.N.

AUTHOR OF "WILD ADVENTURES IN THE FAR NORTH."

LONDON:

ROBERT HARDWICKE, 192, PICCADILLY.

1868.

210. g. 279.

LONDON: PRINTED BY W. CLOWES AND SONS, STAMFORD STREET,
AND CHARING CROSS.

TO THE PUBLIC.

READER, in the following little work I have endeavoured to paint Medical Life in the Navy, just as it is, without blot or varnish. Moreover, feeling certain in my own mind that thousands of the *non-medical* public would be interested by a peep behind the scenes of our world-renowned British Navy, I have purposely avoided all technicalities, and tried to render my little history as readable as possible to the million.

To the million therefore I leave it, to blame, to praise, or criticise, as they may think fit—satisfied that I have told the truth and done my best.

THE AUTHOR.

September, 1868.

CONTENTS.

CHAP.		PAGE
I.	BY RAIL TO LONDON. LITTLE MOONFACE. EUSTON SQUARE	1
II.	DOUBTS AND FEARS. MY FIRST NIGHT IN COCKNEYDOM	8
III.	A FELINE ADVENTURE. PASSED—HOORAY! CONVERSATION *OF* (NOT *WITH*) TWO ISRAELITISH PARTIES ..	13
IV.	THE CITY OF ENCHANTMENT. IN JOINING THE SERVICE I FIND OUT WHAT A "GIG" MEANS	24
V.	HASLAR HOSPITAL. THE MEDICAL MESS. DR. GRUFF	32
VI.	AFLOAT. A STORM IN BISCAY BAY. A WORD ON BASS'S BEER	38
VII.	THE MODERN RODERICK RANDOM. HALF A SERVANT. A PRETTY PICTURE	47
VIII.	A GOOD DINNER. ENEMY ON THE PORT-BOW. MAN THE LIFE-BOAT..	53
IX.	CONTAINING—IF NOT THE WHOLE—NOTHING BUT THE TRUTH	58
X.	ROUND THE CAPE AND UP THE 'BIQUE. SLAVER-HUNTING	66
XI.	AN UNLUCKY SHIP. THE DAYS WHEN WE WENT GIPSYING. INAMBANE. QUILP THE PILOT AND LAMOO..	71
XII.	PROS AND CONS	84
XIII.	ODDS AND ENDS	91

MEDICAL LIFE IN THE NAVY.

CHAPTER I.

BY RAIL TO LONDON. LITTLE MOONFACE. EUSTON SQUARE.

I CHOSE the navy. I am not at all certain what it was that determined my choice; probably this—I have a mole on my left arm, which my gossiping old nurse (rest the old lady's soul!) used to assert was a sure sign that I was born to be a rover. Then I had been several voyages to the Arctic regions, and therefore knew what a sea-life meant, and what it didn't mean; that, no doubt, combined with an extensive acquaintance with the novels of Captain Marryat, had much to do with it. Be this as it may, I did choose that service, and have never yet repented doing so.

Well, after a six weeks' preparatory read-up I packed my traps, taking care not to forget my class-tickets—to prove the number of lectures attended each course—a certificate of age and another of virtue, my degree in surgery (M. Ch.), and my M.D. or medical degree; and with a stick in my hand, and a porter at my side, I set out for the nearest railway station. Previously, of course, I had bidden

double adieus to all my friends, had a great many blessings hurled after me, and not a few old shoes; had kissed a whole family of pretty cousins, ingeniously commencing with the grandmother, although she happened to be as yellow as a withered dock-leaf, and wrinkled as a Malaga raisin; had composed innumerable verses, and burned them as soon as written.

"Ticket for London, please," said I, after giving a final wipe to my eyes with the cuff of my coat.

"Four, two, six," was the laconic reply from the Jack-in-the-box; and this I understood to mean *4l.* *2s.* *6d.* of the sterling money of the realm—for the young gentleman, like most of his class, talked as if he were merely a column in a ledger and had *£. s. d.* written on his classic brow with indelible marking ink, an idea which railway directors ought to see carried out to prevent mistakes.

I got on board the train, a porter banged-to the door so quickly that my coat-tails were embraced between the hinges; the guard said "all right," though it wasn't all right; the whistle shrieked, the engine puffed, the wheels went round with a groan and a grunt, and presently we were rattling over the bridge that spans the romantic Dee, with the white walls of the Granite City glimmering in the moonlight far behind us. After extricating my imprisoned garment, I leant over the window, and began to feel very dull and sentimental. I positively think I would have wept a little, had not the wind just then blown the smoke in my face, causing me to put up the window in disgust. I had a whole first-class compartment to myself, so I determined to

make the best of it. Impressed with this idea, I exchanged my hat for a Glengarry, made a pillow of my rug, a blanket of my plaid, and laid me down to sleep — "perchance to dream." Being rather melancholy, I endeavoured to lull myself to slumber by humming such cheering airs as 'Kathleen Mavourneen,' 'Home, sweet home,' &c.—"a vera judeecious arrangement," had it continued. Unfortunately for my peace of mind it did not; for, although the night train to London does not stop more than half-a-dozen times all the way, at the next station, and before my eyes had closed in sleep, the door of the compartment was opened, a lady was bundled in, the guard said "all right" again, though I could have sworn it wasn't, and the train, like the leg of the wonderful merchant of Rotterdam, "got up and went on as before."

Now, I'm not in the habit of being alarmed at the presence of ladies—no British sailor is—still, on the present occasion, as I peered round the corner of my plaid, and beheld a creature of youth and beauty, I *did* feel a little squeamish; "for," I reasoned, "if she happens to be good, 'all right,' as the guard said, but if not then all decidedly wrong; for why? she might take it into her head, between here and London, to swear that I had been guilty of manslaughter, or suicide, or goodness knows what, and then I feared my certificate of virtue, which I got from the best of aged Scottish divines, might not save me." I looked again and again from below my Highland plaid. "Well," thought I, "she seems mild enough, any how;" so I pretended to sleep, but then, gallantry forbade. "I may sleep in earnest,"

said I to myself, "and by George I don't like the idea of sleeping in the company of any strange lady."

Presently, however, she relieved my mind entirely, for she showed a marriage-ring by drawing off a glove, and hauling out a baby—not out of the glove mind you, but out of her dress somewhere. I gave a sigh of relief, for there was cause and effect at once—a marriage-ring and a baby. I had in my own mind grievously wronged the virtuous lady, so I immediately elevated my prostrate form, rubbed my eyes, yawned, stretched myself, looked at my watch, and in fact behaved entirely like a gentleman just awakened from a pleasant nap.

After I had benignly eyed her sleeping progeny for the space of half a minute, I remarked blandly, and with a soft smile, "Pretty baby, ma'am." (I thought it as ugly as sin.)

"Yes, sir," said she, looking pleasedly at it with one eye (so have I seen a cock contemplate a bantam chick). "It is so like its papa!"

"Is it indeed, ma'am? Well, now, do you know, I thought it just the very image of its mamma!"

"So HE thinks," replied the lady; "but he has only seen its carte-de-visite."

"Unfortunate father!" thought I, "to have seen only the shadowy image of this his darling child—its carte-de-visite, too! wonder, now, if it makes a great many calls? shouldn't like the little cuss to visit me."

"Going far, ma'am?" said I aloud.

And now this queer specimen of femininity raised her head from the study of her sleeping babe, and

looked me full in the face, as if she were only aware of my presence for the first time, and hadn't spoken to me at all. I am proud to say I bore the scrutiny nobly, though it occupied several very long seconds, during which time I did not disgrace my certificate of virtue by the ghost of a blush, till, seeming satisfied, she replied, apparently in deep thought,—

"To Lon—don."

"So am I, ma'am."

"I go on to Plymouth," she said.

"I expect to go there myself soon," said I.

"I am going abroad to join my husband."

"Very strange!" said I, "and *I* hope to go abroad soon to join my" (she looked at me now, with parted lips, and the first rays of a rising smile lighting up her face, expecting me to add "wife")—"to join my ship;" and she only said "Oh!" rather disappointedly I thought, and recommenced the contemplation of the moonfaced babe.

"Bah!" thought I, "there is nothing in you but babies and matrimony;" and I threw myself on the cushions, and soon slept in earnest, and dreamt that the Director-General, in a bob-wig and drab shorts, was dancing Jacky-tar on the quarter-deck of a seventy-four, on the occasion of my being promoted to the dignity of Honorary-Surgeon to the Queen—a thing that is sure to happen some of these days.

When I awoke, cold and shivering, the sun had risen and was shining, as well as he could shine for the white mist that lay, like a veil of gauze, over all the wooded flats that skirt for many miles the great world of London. My companion was still there, and baby had woke up, too, and begun to

crow, probably in imitation of the many cocks that were hallooing to each other over all the country. And now my attention was directed, in fact riveted, to a very curious pantomime which was being performed by the young lady; I had seen the like before, and often have since, but never could solve the mystery. Her eyes were fixed on baby, whose eyes in turn were fastened on her, and she was bobbing her head up and down on the perpendicular, like a wax figure or automaton; every time that she elevated she pronounced the letter "a," and as her head again fell she remarked "gue," thus completing the word "ague," much to the delight of little moonface, and no doubt to her own entire satisfaction. "A-gue! a-gue!"

Well, it certainly was a morning to give any one ague, so, pulling out my brandy-flask, I made bold to present it to her. "You seem cold, ma'am," said I; "will you permit me to offer you a very little brandy?"

"Oh dear, no! thanks," she answered quickly.

"For baby's sake, ma'am," I pleaded; "I am a doctor."

"Well, then," she replied, smiling, "just a tiny little drop. Oh dear! not so much!"

It seemed my ideas of "a tiny little drop," and hers, did not exactly coincide; however, she did me the honour to drink with me: after which I had a tiny little drop to myself, and never felt so much the better of anything.

Euston Square Terminus at last; and the roar of great London came surging on my ears, like the noise and conflict of many waters, or the sound of

a storm-tossed ocean breaking on a stony beach. I leapt to the platform, forgetting at once lady and baby and all, for the following Tuesday was to be big with my fate, and my heart beat flurriedly as I thought "what if I were plucked, in spite of my M.D., in spite of my C.M., in spite even of my certificate of virtue itself?"

CHAPTER II.

DOUBTS AND FEARS. MY FIRST NIGHT IN COCKNEYDOM.

WHAT if I were plucked? What should I do? Go to the American war, embark for the gold-diggings, enlist in a regiment of Sepoys, or throw myself from the top of St. Paul's? This, and such like, were my thoughts, as I bargained with cabby, for a consideration, to drive me and my traps to a quiet second-rate hotel—for my purse by no means partook of the ponderosity of my heart. Cabby did so. The hotel at which I alighted was kept by a gentleman who, with his two daughters, had but lately migrated from the flowery lands of sunny Devon; so lately that he himself could still welcome his guests with an honest smile and hearty shake of hand, while the peach-like bloom had not as yet faded from the cheeks of his pretty buxom daughters. So well pleased was I with my entertainment in every way at this hotel, that I really believed I had arrived in a city where both cabmen and innkeepers were honest and virtuous; but I have many a time and often since then had reason to alter my opinion.

Now, there being only four days clear left me ere I should have to present myself before the august body of examiners at Somerset House, I thought it behoved me to make the best of my time.

Fain—oh, how fain!—would I have dashed care and my books, the one to the winds and the other to the wall, and floated away over the great ocean of London, with all its novelties, all its pleasures and its curiosities; but I was afraid—I dared not. I felt like a butterfly just newly burst from the chrysalis, with a world of flowers and sunshine all around it, but with one leg unfortunately immersed in birdlime. I felt like that gentleman, in Hades you know, with all sorts of good things at his lips, which he could neither touch nor taste of. Nor could I of the joys of London life. No, like Moses from the top of Mount Pisgah, I could but behold the promised land afar off; *he* had the dark gates of death to pass before he might set foot therein, and I had to pass the gloomy portals of Somerset House, and its board of dread examiners.

The landlord—honest man! little did he know the torture he was giving me—spread before me on the table more than a dozen orders for places of amusement,—to me, uninitiated, places of exceeding great joy—red orders, green orders, orange and blue orders, orders for concerts, orders for gardens, orders for theatres royal, and orders for the opera.

Oh, reader, fancy at that moment my state of mind; fancy having the wonderful lamp of Aladdin offered you, and your hands tied behind your back I myself turned red, and green, and orange, and blue, even as the orders were, gasped a little, called for a glass of water,—not beer, mark me,—and rushed forth. I looked not at the flaming placards on the walls, nor at the rows of seedy advertisement-board men. I looked neither to the right

hand nor to the left, but made my way straight to the British Museum, with the hopes of engaging in a little calm reflection. I cannot say I found it however; for all the strange things I saw made me think of all the strange countries these strange things came from, and this set me a-thinking of all the beautiful countries I might see if I passed.

"*If*, gracious heavens!" thought I. "Are you mad, knocking about here like a magnetised mummy, and Tuesday the passing day? Home, you devil you, and study!"

Half an hour later, in imagination behold me seated before a table in my little room, with the sun's parting beams shemmering dustily in through my window, surrounded with books—books—books medical, books surgical, books botanical, books nautical, books what-not-ical; behold, too, the wet towel that begirts my thoughtful brow, my malar bones leaning on my hands, my forearms resting on the mahogany, while I am thinking, or trying to think, of, on, or about everything known, unknown, or guessed at.

Mahogany, did I say? "Mahogany," methinks I hear the examiner say, "hem! hem! upon what island, tell us, doctor, does the mahogany tree grow, exist, and flourish? Give the botanical name of this tree, the natural family to which it belongs, the form of its leaves and flower, its uses in medicine and in art, the probable number of years it lives, the articles made from its bark, the parasites that inhabit it, the birds that build their nests therein, and the class of savage who finds shelter beneath its wide-spreading, *if* wide spreading, branches; en-

tering minutely into the formation of animal structure in general, and describing the whole theory of cellular development, tracing the gradual rise of man from the sponge through the various forms of snail, oyster, salmon, lobster, lizard, rabbit, kangaroo, monkey, gorilla, nigger, and Irish Yahoo, up to the perfect Englishman; and state your ideas of the most probable form and amount of perfection at which you think the animal structure will arrive in the course of the next ten thousand years. Is mahogany much superior to oak? If so, why is it not used in building ships? Give a short account of the history of shipbuilding, with diagrams illustrative of the internal economy of Noah's ark, the Great Eastern, and the Rob Roy canoe. Describe the construction of the Armstrong gun, King Theodore's mortar, and Mons Meg. Describe the different kinds of mortars used in building walls, and those used in throwing them down; insert here the composition of gunpowder tea, Fenian fire, and the last New Yankee drink? In the mahogany country state the diseases most prevalent among the natives, and those which you would think yourself justified in telling the senior assistant-surgeon to request the surgeon to beg the first lieutenant to report to the commander, that he may call the attention of your captain to the necessity of ordering the crew to guard against."

Then, most indulgent reader, behold me, with these and a thousand other such questions floating confusedly through my bewildered brain—behold me, I say, rise from the table slowly, and as one who doubteth whether he be not standing on his head; behold me kick aside the cane-bottomed chair,

then clear the table with one wild sweep, state "Bosh!" with the air and emphasis of a pasha of three tails, throw myself on the sofa, and with a "Waitah, glass of gwog and cigaw, please," commence to read 'Tom Cwingle's Log.' This is how I spent my first day, and a good part of the night too, in London; and—moral—I should sincerely advise every medical aspirant, or candidate for a commission in the Royal Navy, to bring in his pocket some such novel as Roderick Random, or Harry Lorrequer, to read immediately before passing, and to leave every other book at home.

CHAPTER III.

A FELINE ADVENTURE. PASSED—HOORAY! CONVERSATION OF (NOT *WITH*) TWO ISRAELITISH PARTIES.

NEXT morning, while engaged at my toilet—not a limb of my body which I had not amputated that morning mentally, not one of my joints I had not exsected, or a capital operation I did not perform on my own person; I had, in fact, with imaginary surgical instruments, cut myself all into little pieces, dissected my every nerve, filled all my arteries with red wax and my veins with blue, traced out the origin and insertion of every muscle, and thought of what each one could and what each one could not do; and was just giving the final twirl to my delicate moustache, and the proper set to the bow of my necktie, when something occurred which caused me to start and turn quickly round. It was a soft modest little knock—almost plaintive in its modesty and softness—at my door. I heard no foot-fall nor sound of any sort, simply the "tapping as of some one gently rapping, rapping at my chamber-door; simply that and nothing more."

"This," thought I, "is Sarah Jane with my boots: mindful girl is Sarah Jane." Then giving voice to my thoughts, "Thank you, Sally," said I, "just leave them outside; I'll have Finnon haddocks and oatcake for breakfast."

Then a voice that wasn't Sally's, but ever so much softer and more kitten-like in tone, replied,—

"Hem! ahem!" and presently added, "it is only *me*." Then the door was pushed slightly open, while pressing one foot doubtfully against it I peeped out, and to my surprise perceived the half of a little yellow book and the whole of a little yellow face with whiskers at it, and an expression so very like that of a one-year-old lady cat, that I remained for a little in momentary expectation of hearing it purr. But it didn't, merely smiling and repeating,—

"It's only me."

"So I see," said I, quite taken aback as it were. "So I see." Then "*Me*," slowly and gently overcame the resistance my right foot offered, and, pushing open the door, held out the yellow tract, which I took to be of a spiritual nature, and spoke to "*I*" as follows:—

"We—that is, he! he! my father and me, he! he! you see—had heard of your going up to join the Navy." At that moment it seemed to "*I*" the easiest thing in the world, short of spending money, to "join" the Royal Navy. "And so," continued "*Me*," "you see, he! he! we thought of making you a call, all in business, you see, he! he! and offering you our estimate for your uniform."

Uniform! grand name to my ear, I who had never worn anything more gay than a homespun coat of houden-gray and a Gordon tartan kilt. I thought it was my turn to say, "Hem! hem!" and even add an inaudible "Ho! ho!" for I felt myself expanding inch by inch like a kidney bean.

"In that little book," *Me* went on, "there"—pointing to the front page—"you will find the names of one hundred and fifty-seven officers and gentlemen who have honoured us with their custom."

Then I exclaimed, "Dear me!" and Me added with animation, "You see: he! he!"

Was it any wonder then, that I succumbed to such a flood of temptation, that even my native canniness disappeared or was swept away, and that I promised this gentleman of feline address that if I passed I would assuredly make his father a call? Alas! unfortunate greenhorn that I was, I found out when too late that some on the list had certainly given him their custom, and like myself repented only once but for ever; while the custom of the majority was confined to a pair or two of duck inexpressibles, a uniform cap, a dozen of buttons, or a hank of sewing silk.

"We can proudly refer you," Me continued, as I bowed him to the door, "to any of them, and if you do us the honour of calling you will be enabled to judge for yourself; but," added he, in a stage whisper, at the same time making a determined attempt, as I thought, to bite off my ear, "be aware of the Jews."

"What," said I, "is your father not then a Jew? the name I thought—"

"Oh-h-h!" he cried, "they may call us so; but—born in England—bred in London—neighbourhood of Bond Street, highly respectable locality. Army and Navy outfitters, my father and me, you see, he! he! We invite inspection, give satisfaction, and defy competition, you see, he! he!" And he

glided silently down stairs, giving me scarcely time to observe that he was a young man with black hair, black eyes and whiskers, and wearing goloshes.

I soon after went down to breakfast, wondering, as I well might, how my feline friend had found out all about my affairs; but it was not till I had eaten ninety and one breakfasts and a corresponding number of dinners that I discovered he belonged to a class of fellows who live by fleecing the poor victims they pretend to clothe. Intending candidates, beware of the Jews!

Tuesday came round at last, just as Tuesdays have always been in the habit of doing, and at eleven o'clock precisely I, with my heart playing a game of cricket, with my spine for the bat and my ribs for the wicket, "repaired"—a very different mode of progression from any other with which I am acquainted—to the medical department of Somerset House. I do not remember ever having entered any place with feelings of greater solemnity. I was astonished in no small degree at the people who passed along the Strand for appearing so disgustingly indifferent,—

"And I so weerie fu' o' care."

Had I been going to stand my trial for manslaughter or cattle-lifting, I am certain I should have felt supremely happy in comparison. I passed the frowning gateway, traversed the large square, and crossed the Rubicon by entering the great centre doorway and inquiring my way to the examination room. I had previously, be it observed, sent in my medical and surgical degrees, with all my class

tickets and certificates, including that for virtue. I was now directed up a great many long stairs, along as many gloomy-looking corridors, in which I lost my way at least half a dozen times, and had to call at a corresponding number of green-baize-covered brass tacketed doors, in order to be put right, before I at length found myself in front of the proper one, at which I knocked once, twice, and even thrice, without in any way affecting or diminishing the buzz that was going on behind the door; so I pushed it open, and boldly entered. I now found myself in the midst of a large and select assortment of clerks, whose tongues were hard at work if their pens were not, and who did not seem half so much astonished at seeing me there as I felt at finding myself. The room itself looked like an hypertrophied law office, of which the principal features were papers and presses, three-legged stools, calf-bound folios, and cobwebs. I stood for a considerable time, observing but unobserved, wondering all the while what to say, how to say it, and whom to say it to, and resisting an inclination to put my finger in my mouth. Moreover, at that moment a war was going on within me between pride and modesty, for I was not at all certain whether I ought to take off my hat; so being "canny" and a Scot, I adopted a middle course, and commenced to wipe imaginary perspiration from my brow, an operation which, of course, necessitated the removal of my head-dress. Probably the cambric handkerchief caught the tail of the eye of a quieter-looking knight of the quill, who sat a little apart from the other drones of the pen; at any rate he

quickly dismounted, and coming up to me politely asked my business. I told him, and he civilly motioned me to a seat to awaitmy turn for examination. By-and-bye other candidates dropped in, each of whom I rejoiced to observe looked a little paler, decidedly more blue, and infinitely greener than I did myself. This was some relief, so I sat by the dusty window which overlooked the Thames, watching the little skiffs gliding to and fro, the boats hastening hither and thither, and the big lazy-like barges that floated on the calm unruffled bosom of the great mysterious river, and thinking and wishing that it could but break its everlasting silence and tell its tale, and mention even a tithe of the scenes that had been acted on its breast or by its banks since it first rolled its infant waters to the sea, through a forest of trees instead of a forest of masts and spires, or tell of the many beings that had sought relief from a world of sin and suffering under its dark current. So ran my thoughts, and as the river so did time glide by, and two hours passed away, then a third; and when at last my name was called, it was only to inform me that I must come back on the following day, there being too many to be examined at once.

At the hour appointed I was immediately conducted into the presence of the august assembly of examiners, and this is what I saw, or rather, this was the picture on my retina, for to see, in the usual acceptation of the term, was, under the circumstances, out of the question:—A table with a green cover, laid out for a feast—to me a ghastly feast—of reason and flow of soul. My reason was to form the

feast, my soul was to flow; the five pleasant-looking and gentlemanly men who sat around were to partake of the banquet. I did not walk into the room, I seemed to glide as if in a dream, or as if I had been my own ghost. Every person and every thing in the room appeared strangely contorted; and the whole formed a wonderful mirage, miraculously confused. The fire hopped up on the table, the table consigned itself to the flames at one moment, and made an insane attempt to get up the chimney the next. The roof bending down in one corner affectionately kissed the carpet, the carpet bobbing up at another returned the chaste salute. Then the gentlemen smiled on me pleasantly, while I replied by a horrible grin.

"Sit down, sir," said one, and his voice sounded far away, as if in another world, as I tottered to the chair, and with palsied arm helped myself to a glass of water, which had been placed on the table for my use. The water revived me, and at the first task I was asked to perform—translate a small portion of Gregory's (not powder) Conspectus into English—my senses came back. The scales fell from my eyes, the table and fire resumed their proper places, the roof and carpet ceased to dally, my scattered brains came all of a heap once more, and I was myself again as much as ever Richard was, or any other man. I answered most of the questions, if not all. I was tackled for ten minutes at a time by each of the examiners. I performed mental operations on the limbs of beings who never existed, prescribed hypothetically for innumerable ailments, brought divers mythical children into the world, dissected muscles

and nerves in imagination, talked of green trees, fruit, flowers, natural families, and far-away lands, as if I had been Linnæus, Columbus, and Humboldt all in one, so that, in less than an hour, the august body leant their backs against their respective chairs, and looked knowingly in each other's faces for a period of several very long seconds. They then nodded to one another, did this august body, looked at their tablets, and nodded again. After this pantomime had come to a conclusion I was furnished with a sheet of foolscap and sent back to the room above the Thames to write a dissertation on fractures of the cranium, and shortly after sending it in I was recalled and informed that I had sustained the dread ordeal to their entire satisfaction, &c., and that I had better, before I left the house, pay an official visit to the Director-General. I bowed, retired, heaved a monstre sigh, made the visit of ceremony, and afterwards my exit.

The first gentleman (?) I met on coming out was a short, middle-aged Shylock, hook-nosed and raven-haired, and arrayed in a surtout of seedy black. He approached me with much bowing and smiling, and holding below my nose a little green tract which he begged I would accept.

"Exceedingly kind," thought I, and was about to comply with his request, when, greatly to my surprise and the discomposure of my toilet, an arm was hooked into mine, I was wheeled round as if on a pivot, and found myself face to face with another Israelite armed with a *red* tract.

"He is a Jew and a dog," said this latter, shaking a fore-finger close to my face.

"Is he?" said I. The words had hardly escaped my lips when the other Jew whipped his arm through mine and quickly re-wheeled me towards him.

"He is a liar and a cheat," hissed he, with the same motion of the fore-finger as his rival had used.

"Indeed!" said I, beginning to wonder what it all meant. I had not, however, long time to wonder, being once more set spinning by the Israelite of the red tract.

"Beware of the Jews!" he whispered, pointing to the other; and the conversation was continued in the following strain. Although in the common sense of the word it really was no conversation, as each of them addressed himself to me only, and I could find no reply, still, taking the word in its literal meaning (from *con*, together, and *verto*, I turn), it was indeed a conversation, for they turned me together, each one, as he addressed me, hooking his arm in mine and whirling me round like the handle of an air-pump or a badly constructed teetotum, and shaking a fore-finger in my face, as if I were a parrot and he wanted me to swear.

Shylock of the green tract.—"He is a swine and a scoundrel."

Israelite of the red.—"He's a liar and a thief."

Shylock of the green.—"And he'll get round you some way."

Israelite of red.—"Ahab and brothers cheat everybody they can."

Shylock of green.—"He'll be lending you money."

Red.—"Whole town know them—"

Green.—"Charge you thirty per cent."

Red—"They are swindlers and dogs."

Green.—"Look at our estimate."

Red.—"Look at *our* estimate."

Green.—"Peep at our charges."

Red.—"Five years' credit."

Green.—"Come with us, sir," tugging me to the right.

Red.—"This way, master," pulling me to the left.

Green.—"Be advised; he'll rob you."

Red.—"If you go he'll murder you."

"Damn you both!" I roared; and letting fly both fists at the same time, I turned them both together on their backs and thus put an end to the conversation. Only just in time, though, for the remaining ten tribes, or their representatives, were hurrying towards me, each one swaying aloft a gaudy-coloured tract; and I saw no way of escaping but by fairly making a run for it, which I accordingly did, pursued by the ten tribes; and even had I been a centipede, I would have assuredly been torn limb from limb, had I not just then rushed into the arms of my feline friend from Bond Street.

He purred, gave me a paw and many congratulations; was so glad I had passed,—but, to be sure, knew I would,—and so happy I had escaped the Jews; would I take a glass of beer?

I said, "I didn't mind;" so we adjourned (the right word in the right place—adjourned) to a quiet adjoining hotel.

"Now," said he, as he tendered the waiter a five-pound Bank of England note, "you must not take it amiss, Doctor, but—"

"No smaller change, sir?" asked the waiter.

"I'm afraid," said my friend (?), opening and

turning over the contents of a well-lined pocket-book, "I've only got five—oh, here are sovs, he! he! Then turning to me: "I was going to observe," he continued, "that if you want a pound or two, he! he!—you know young fellows will be young fellows—only don't say a word to my father, he! he! he!—highly respectable man. Another glass of beer? No? Well, we will go and see father!"

"But," said I, "I really must go home first."

"Oh dear no; don't think of such a thing."

"I'm deuced hungry," continued I.

"My dear sir, excuse me, but it is just our dinner hour; nice roast turkey, and boiled leg of mutton with—"

"Any pickled pork?"

"He! he! now you young *officers* will have your jokes; but, he! he! though we don't just eat pork, you'll find us just as good as most Christians. Some capital wine—very old brand; father got it from the Cape only the other day; in fact, though I should not mention these things, it was sent us by a grateful customer. But come, you're hungry, we'll get a cab."

CHAPTER IV.

THE CITY OF ENCHANTMENT. IN JOINING THE SERVICE I FIND OUT WHAT A "GIG" MEANS.

THE fortnight immediately subsequent to my passing into the Royal Navy was spent by me in the great metropolis, in a perfect maze of pleasure and excitement. For the first time for years I knew what it was to be free from care and trouble, independent, and quietly happy. I went the round of the sights and the round of the theatres, and lingered entranced in the opera; but I went all alone, and unaccompanied, save by a small pocket guide-book, and I believe I enjoyed it all the more on that account. No one cared for nor looked at the lonely stranger, and he at no one. I roamed through the spacious streets, strolled delightedly in the handsome parks, lounged in picture galleries, or buried myself for hours in the solemn halls and classical courts of that prince of public buildings the British Museum; and, when tired of rambling, I dined by myself in a quiet hotel. Every sight was strange to me, every sound was new; it was as if some good fairy, by a touch of her magic wand, had transported me to an enchanted city; and when I closed my eyes at night, or even shut them by day, behold, there was the same moving panorama that I might gaze on till tired or asleep.

But all this was too good to last long. One morning, on coming down to breakfast, bright-hearted and beaming as ever, I found on my plate, instead of fried soles, a long blue official letter, "On her Majesty's Service." It was my appointment to the 'Victory,'—"additional for service at Haslar Hospital." As soon as I read it the enchantment was dissolved, the spell was broken; and when I tried that day to find new pleasures, new sources of amusement, I utterly failed, and found with disgust that it was but a common work-a-day world after all, and that London was very like other places in that respect. I lingered but a few more days in town, and then hastened by train to Portsmouth to take up my appointment—to join the service in reality.

It was a cold raw morning, with a grey and cheerless sky, and a biting south-wester blowing up channel, and ruffling the water in the Solent. Alongside of the pier the boats and wherries were all in motion, scratching and otherwise damaging their gunwales against the stones, as they were lifted up and down at the pleasure of the wavelets. The boatmen themselves were either drinking beer at adjacent bars, or stamping up and down the quay with the hopes of enticing a little warmth to their half-frozen toes, and rubbing the ends of their noses for a like purpose. Suddenly there arose a great commotion among them, and they all rushed off to surround a gentleman in bran-new naval uniform, who was looking, with his mouth open, for a boat, in every place where a boat was most unlikely to be. Knowing at a glance that he was a stranger,

they very generously, each and all of them, offered their services, and wanted to row him somewhere —anywhere. After a great deal of fighting and scrambling among themselves, during which the officer got tugged here and tugged there a good many times, he was at last bundled into a very dirty cobble, into which a rough-looking boatman bounded after him and at once shoved off.

The naval officer was myself—the reader's obsequious slave. As for the boatman, one thing must be said in his favour, he seemed to be a person of religious character—in one thing at least, for, on the Day of Judgment, *I*, for one, will not be able to turn round and say to him "I was a stranger and ye took me not in," for he did take me in. In fact, Portsmouth, as a town, is rather particular on this point of Christianity: they *do* take strangers in.

"Where away to?" asked the jolly waterman, leaning a moment on his oars.

"H. M. S. 'Victory,'" replied I.

"Be going for to join, I dessay, sir?"

"You are right," said I; "but have the goodness to pull so that I may not be wet through on both sides."

"Can't help the weather, sir."

"I'll pay here," said I, "before we go alongside."

"Very good, sir."

"How much?"

"Only three shillings, sir."

"*Only* three shillings!" I repeated, and added "eh?"

"That's all, sir—distance is short you know."

"Do you mean to say," said I, "that you really mean to charge—"

"Just three bob," interrupting me; "flag 's up—can see for yourself, sir."

"The flag, you sco—I mean my good man—don't tell me about a flag, I'm too far north for you;" and I tried to look as northish as possible." "Flag, indeed! humph!"

"Why, sir," said the man of oars, with a pitying expression of countenance and voice, "flag means double fare—anybody'll tell you that, sir."

"Nonsense!" said I; "don't tell me that any one takes the trouble of hoisting a flag in order to fill your confounded pockets; there is half a crown, and not a penny more do you get from me."

"Well, sir, o' condition you has me again, sir, you know, sir,—andmy name's Mc Donald;" and he pocketed the money, which I afterwards discovered was a *leetle* too much. "McDonald," thought I—"my grandmother's name; the rascal thinks to come round me by calling himself a Scotchman—the idea of a McDonald being a waterman!"

"Sir," said I, aloud, "it is my unbiassed opinion and firm conviction that you are ——" I was going to add "a most unmitigated blackguard, but I noticed that he was a man of six feet two, with breadth in proportion, so I left the sentence unfinished.

We were now within sight of the bristling sides of the old 'Victory,' on the quarter-deck of which fell the great and gallant Nelson in the hour of battle and triumph; and I was a young officer about to join that service which can boast of so many brave and noble men, and brave and noble deeds; and one would naturally expect that I would in-

dulge in a few dreams of chivalry and romance, picture to myself a bright and glorious future, pounds' weight of medals and crosses, including the Victoria, kiss the hilt of my sword, and all that sort of thing. I did not. I was too wretchedly cold for one reason, and the only feeling I had was one of shyness; as for duty, I knew I could and would do that, as most of my countrymen had done before me; so I left castle-building to the younger sons of noblemen or gentry, whose parents can afford to allow them two or three hundred pounds a year to eke out their pay and smooth the difficulties of the service. Not having been fortunate enough to be born with even a horn spoon in my mouth, I had to be content with my education as my fortune, and my navy pay as my only income.

"Sta-bird side, I dessay, sir?" said the waterman.

"Certainly," said I, having a glimmering idea that it must be the proper side.

A few minutes after—"The Admiral's gig is going there, sir,—better wait a bit." I looked on shore and *did* see a gig, and two horses attached to it.

"No," said I, "decidedly not, "he can't see us here, man. I suppose you want to go sticking your dirty wet oars in the air, do you?—(I had seen pictures of this performance). "Drive on, I mean pull ahead, my hearty"—a phrase I had heard at the theatre, and considered highly nautical.

The waterman obeyed, and here is what came of it. We were just approaching the ladder, when I suddenly became sensible of a rushing noise. I have a dim recollection of seeing a long, many-oared

boat, carrying a large red flag, and with an old grey-haired officer sitting astern; of hearing a voice—it might have belonged to the old man of the sea, for anything I could have told to the contrary—float down the wind,—

"Clear the way with that (something) bumboat!" Then came a crash, my heels flew up—I had been sitting on the gunwale—and overboard I went with a splash, just as some one else in the long boat sang out, "Way enough!"

Way enough, indeed! there was a little too much way for me. When I came to the surface of the water, I found myself several yards from the ladder, and at once struck out for it. There was a great deal of noise and shouting, and a sailor held towards me the sharp end of a boathook; but I had no intention of being lugged out as if I were a pair of canvas trowsers, and, calling to the sailor to keep his pole to himself—did he want to knock my eye out?—I swam to the ladder and ascended. Thus then I joined the service, and, having entered at the foot of the ladder, I trust some day to find myself at the top of it.

And, talking of joining the service, I here beg to repudiate, as an utter fabrication, the anecdote—generally received as authentic in the service—of the Scotch doctor, who, going to report himself for the first time on board of the 'Victory,' knocked at the door, and inquired (at a marine, I think), "Is this the Royal Nauvy? 'cause I'm come till jine." The story bears "fib" on the face of it, for there is not a Scottish schoolboy but knows that one ship does not make a navy, any more than one swallow does a summer.

But, dear intending candidate, if you wish to do the right thing, array yourself quietly in frock-coat, cap—not cocked hat, remember—and sword, and go on board your ship in any boat you please, only keep out of the way of gigs. When you arrive on board, don't be expecting to see the admiral, because you'll be disappointed; but ask a sailor or marine to point you out the midshipman of the watch, and request the latter to show you the commander. Make this request civilly, mind you; do not pull his ear, because, if big and hirsute, he might beat you, which would be a bad beginning. When you meet the commander, don't rush up and shake him by the hand, and begin talking about the weather; walk respectfully up to him, and lift your cap as you would to a lady; upon which he will hurriedly point to his nose with his forefinger, by way of returning the salute, while at the same time you say—

"*Come* on board, sir—to *join*, sir."

It is the custom of the service to make this remark in a firm, bold, decided tone, placing the emphasis on the "*come*," to show clearly that you *did come*, and that no one kicked, or dragged, or otherwise brought you on board against your will. The proper intonation of the remark may be learned from any polite waiter at a hotel, when he tells you, "Dinner 's ready, sir, please;" or it may be heard in the "Now then, gents," of the railway guard of the period.

Having reported yourself to the man of three stripes, you must not expect that he will shake hands, or embrace you, ask you on shore to tea, and introduce you to his wife. No, if he is good-natured, and has not had a difference of opinion with the

captain lately, he *may* condescend to show you your cabin and introduce you to your messmates; but if he is out of temper, he will merely ask your name, and, on your telling him, remark, "Humph!" then call the most minute midshipman to conduct you to your cabin, being at the same time almost certain to mispronounce your name. Say your name is Struthers, he will call you Stutters.

"Here, Mr. Pigmy, conduct Mr. Stutters to his cabin, and show him where the gunroom—ah! I beg his pardon, the *ward*room—lies."

"Ay, ay, sir," says the middy, and skips off at a round trot, obliging you either to adopt the same ungraceful mode of progression, or lose sight of him altogether, and have to wander about, feeling very much from home, until some officer passing takes pity on you and leads you to the wardroom.

CHAPTER V.

HASLAR HOSPITAL. THE MEDICAL MESS. DR. GRUFF.

It is a way they have in the service, or rather it is the custom of the present Director-General, not to appoint the newly-entered medical officer at once to a sea-going ship, but instead to one or other of the naval hospitals for a few weeks or even months, in order that he may be put up to the ropes, as the saying is, or duly initiated into the mysteries of service and routine of duty. This is certainly a good idea, although it is a question whether it would not be better to adopt the plan they have at Netley, and thus put the navy and army on the same footing.

Haslar Hospital at Portsmouth is a great rambling barrack-looking block of brick building, with a yard or square surrounded by high walls in front, and with two wings extending from behind, which, with the chapel between, form another and smaller square.

There are seldom fewer than a thousand patients within, and, independent of a whole regiment of male and female nurses, sick-bay-men, servants, cooks, *et id genus omne*, there is a regular staff of officers, consisting of a captain—of what use I have yet to learn—two medical inspector-generals, generally three or four surgeons, the same number of

regularly appointed assistant-surgeons, besides from ten to twenty acting assistant-surgeons * waiting for appointments, and doing duty as supernumeraries. Of this last class I myself was a member.

Soon as the clock tolled the hour of eight in the morning, the staff surgeon of our side of the hospital stalked into the duty cabin, where we, the assistants, were waiting to receive him. Immediately after, we set out on the morning visit, each of us armed with a little board or palette to be used as a writing-desk, an excise inkstand slung in a button-hole, and a quill behind the ear. The large doors were thrown open, the beds neat and tidy, and the nurses "standing by." Up each side of the long wards, from bed to bed, we journeyed; notifying the progress of each case, repeating the treatment here, altering or suspending it there, and performing small operations in another place; listening attentively to tales of aches and pains, and hopes and fears, and just in a sort of general way acting the part of good Samaritans. From one ward to another we went, up and down long staircases, along lengthy corridors, into wards in the attics, into wards on the basement, and into wards below ground,—fracture wards, Lazarus wards, erysipelas wards, men's wards, officers' wards; and thus we spent the time till a little past nine, by which time the relief of so much suffering had given us an appetite, and we hurried off to the messroom to breakfast.

The medical mess at Haslar is one of the finest

* The acting assistant-surgeons are those who have not as yet served the probationary year, or been confirmed. They are liable to be dismissed without a court-martial.

in the service. Attached to the room is a nice little apartment, fitted up with a bagatelle-table, and boxing gloves and foils *ad libitum*. And, sure enough, you might walk many a weary mile, or sail many a knot, without meeting twenty such happy faces as every evening surrounded our dinner-table, without beholding twenty such bumper glasses raised at once to the toast of Her Majesty the Queen, and without hearing twenty such good songs, or five times twenty such yarns and original bons-mots, as you would at Haslar Medical Mess. Yet I must confess we partook in but a small degree indeed of the solemn quietude of Wordsworth's—

> "——— party in a parlour cramm'd,
> Some sipping punch, some sipping tea,
> But, as you by their faces see,
> All silent—and all d—d."

I do not deny that we were a little noisy at times, and that on several occasions, having eaten and drunken till we were filled, we rose up to dance, and consequently received a *polite* message from the inspector whose house was adjoining, requesting us to "stop our *confounded* row;" but then the old man was married, and no doubt his wife was at the bottom of it.

Duty was a thing that did not fall to the lot of us supers every day. We took it turn about, and hard enough work it used to be too. As soon as breakfast was over, the medical officer on duty would hie him away to the receiving-room, and seat himself at the large desk; and by-and-bye the cases would begin to pour in. First there would arrive, say three or four blue-jackets, with their bags under

their arms, in charge of an assistant-surgeon, then a squad of marines, then more blue-jackets, then more red-coats, and so the game of *rouge-et-noir* would go on during the day. The officer on duty has first to judge whether or not the case is one that can be admitted,—that is, which cannot be conveniently treated on board; he has then to appoint the patient a bed in a proper ward, and prescribe for him, almost invariably a bath and a couple of pills. Besides, he has to enter the previous history of the case, verbatim, into each patient's case-book, and if the cases are numerous, and the assistant-surgeon who brings them has written an elaborate account of each disease, the duty-officer will have had his work cut out for him till dinner-time at least. Before the hour of the patient's dinner, this gentleman has also to glance into each ward, to see if everything is right, and if there are any complaints. Even when ten or eleven o'clock at night brings sleep and repose to others, his work is not yet over; he has one other visit to pay any time during the night through all his wards. Then with dark-lantern and slippers you may meet him, gliding ghost-like along the corridors or passages, lingering at ward doors, listening on the staircases, smelling and snuffing, peeping and keeking, and endeavouring by eye, or ear, or nose, to detect the slightest irregularity among the patients or nurses, such as burning lights without orders, gambling by the light of the fire, or smoking. This visit paid, he may return to his virtuous cabin, and sleep as soundly as he chooses.

Very few of the old surgeons interfere with the

duties of their assistants, but there *be* men who seem to think you have merely come to the service to learn, not to practise your profession, and therefore they treat you as mere students, or at the best hobble-de-hoy doctors. Of this class was Dr. Gruff, a man whom I would back against the whole profession for caudle, clyster, castor-oil, or linseed poultice; but who, I rather suspect, never prescribed a dose of chiretta, santonin, or lithia-water in his life. He came to me one duty-day, in a great hurry, and so much excited that I judged he had received some grievous bodily ailment, or suffered some severe family bereavement.

"Well, sir," he cried; "I hear, sir, you have put a case of ulcer into the erysipelas ward."

This remark, not partaking of the nature of question, I thought required no answer.

"Is it true, sir?—is it true?" he continued, getting blue and red.

"It is, sir," was the reply.

"And what do you mean by it, sir? What do you mean by it?" he exclaimed, waxing more and more wroth.

"I thought, sir—" I began.

"You thought, sir!"

"Yes, sir," continued I, my Highland blood getting uppermost, "I *did* think that, the case being one of ulcer of an *erysipelatous* nature, I was—"

"Erysipelatous ulcer!" interrupting me. "Oh!" said he, "that alters the case. Why did you not say so at first? I beg your pardon;" and he trotted off again.

"All right," thought I, "old Gruff. I guess you ·orry you spoke."

But although there are not wanting medical officers in the service who, on being promoted to staff-surgeon, appear to forget that ever they wore less than three stripes, and can keep company with no one under the rank of commander, I am happy to say they are few and far between, and every year getting more few and farther between.

It is a fine thing to be appointed for, say three or four years to a home hospital; in fact, it is the assistant-surgeon's highest ambition. Next, in point of comfort, would be an appointment at the Naval Hospital of Malta, Cape of Good Hope, or China.

CHAPTER VI.

AFLOAT. A STORM IN BISCAY BAY. A WORD ON BASS'S BEER.

FOR the space of six weeks I lived in clover at Haslar, and at the end of that time my appointment to a sea-going ship came. It was the pleasure of their Lordships the Commissioners, that I should take my passage to the Cape of Good Hope in a frigate, which had lately been put in commission and was soon about to sail. Arrived there, I was to be handed over to the flag-ship on that station for disposal, like so many stones of salt pork. On first entering the service every medical officer is sent for one commission (three to five years) to a foreign station; and it is certainly very proper too that the youngest and strongest men, rather than the oldest, should do the rough work of the service, and go to the most unhealthy stations.

The frigate in which I was ordered passage was to sail from Plymouth. To that town I was accordingly sent by train, and found the good ship in such a state of internal chaos—painters, carpenters, sailmakers, and sailors; armourers, blacksmiths, gunners, and tailors; every one engaged at his own trade, with such an utter disregard of order or regularity, while the decks were in such confusion, littered with tools, nails, shavings, ropes, and spars, among which I scrambled, and over which I tumbled, getting into

everybody's way, and finding so little rest for the sole of my foot, that I was fain to beg a week's leave, and glad when I obtained it. On going on board again at the end of that time, a very different appearance presented itself; everything was in its proper place, order and regularity were everywhere. The decks were white and clean, the binnacles, the brass and mahogany work polished, the gear all taut, the ropes coiled, and the vessel herself sitting on the water saucy as the queen of ducks, with her pennant flying and her beautiful ensign floating gracefully astern. The gallant ship was ready for sea, had been unmoored, had made her trial trips, and was now anchored in the Sound. From early morning to busy noon, and from noon till night, boats glided backwards and forwards between the ship and the shore, filled with the friends of those on board, or laden with wardroom and gunroom stores. Among these might have been seen a shore-boat, rowed by two sturdy watermen, and having on board a large sea-chest, with a naval officer on top of it, grasping firmly a Cremona in one hand and holding a hat-box in the other. The boat was filled with any number of smaller packages, among which were two black portmanteaus, warranted to be the best of leather, and containing the gentleman's dress and undress uniforms; these, however, turned out to be mere painted pasteboard, and in a very few months the cockroaches—careless, merry-hearted creatures—after eating up every morsel of them, turned their attention to the contents, on which they dined and supped for many days, till the officer's dress-coat was like a meal-sieve, and his pantaloons might

have been conveniently used for a landing-net. This, however, was a matter of small consequence, for, contrary to the reiterated assurance of his feline friend, no one portion of this officer's uniform held out for a longer period than six months, the introduction of any part of his person into the corresponding portion of his raiment having become a matter of matutinal anxiety and distress, lest a solution of continuity in the garment might be the unfortunate result.

About six o'clock on a beautiful Wednesday evening, early in the month of May, our gallant and saucy frigate turned her bows seaward and slowly steamed away from amidst the fleet of little boats that—crowded with the unhappy wives and sweethearts of the sailors—had hung around us all the afternoon. Puffing and blowing a great deal, and apparently panting to be out and away at sea, the good ship nevertheless left her anchorage but slowly, and withal reluctantly, her tears falling thick and fast on the quarter-deck as she went.

The band was playing a slow and mournful air, by way of keeping up our spirits.

I had no friends to say farewell to, there was no tear-bedimmed eye to gaze after me until I faded in distance; so I stood on the poop, leaning over the bulwarks, after the fashion of Vanderdecken, captain of the Flying Dutchman, and equally sad and sorrowful-looking. And what did I see from my elevated situation? A moving picture, a living panorama; a bright sky sprinkled with a few fleecy cloudlets, over a blue sea all in motion before a fresh breeze of wind; a fleet of little boats astern, filled

with picturesquely dressed seamen and women waving handkerchiefs; the long breakwater lined with a dense crowd of sorrowing friends, each anxious to gain one last look of the dear face he may never see more. Yonder is the grey-haired father, yonder the widowed mother, the affectionate brother, the loving sister, the fond wife, the beloved sweetheart,—all are there; and not a sigh that is sighed, not a tear that is shed, not a prayer that is breathed, but finds a response in the bosom of some loved one on board. To the right are green hills, people-clad likewise, while away in the distance the steeple of many a church "points the way to happier spheres," and on the flagstaff at the port-admiral's house is floating the signal "Fare thee well."

The band has ceased to play, the sailors have given their last ringing cheer, even the echoes of which have died away, and faintly down the wind comes the sound of the evening bells. The men are gathered in little groups on deck, and there is a tenderness in their landward gaze, and a pathos in their rough voices, that one would hardly expect to find.

"Yonder's my Poll, Jack," says one. "Look, see! the poor lass is crying; blowed if I think I'll ever see her more."

"There," says another, "is *my* old girl on the breakwater, beside the old cove in the red nightcap."

"That's my father, Bill," answers a third. "God bless the dear old chap!"

"Good-bye, Jean; good-bye, lass. Ah! she won't hear me. Blessed if I don't feel as if I could make a big baby of myself and cry outright."

#

"Oh! Dick, Dick," exclaims an honest-looking tar; "I see'd my poor wife tumble down; she had wee Johnnie in her arms, and—and what will I do?"

"Keep up your heart, to be sure," answers a tall, rough son of a gun. "There, she has righted again, only a bit of a swoon ye see. I've got neither sister, wife, nor mother, so surely it's *me* that ought to be making a noodle of myself; but where's the use?"

An hour or two later we were steaming across channel, with nothing visible but the blue sea all before us, and the chalky cliffs of Cornwall far behind, with the rosy blush of the setting sun lingering on their summits.

Then the light faded from the sky, the gloaming star shone out in the east, big waves began to tumble in, and the night breeze blew cold and chill from off the broad Atlantic Ocean.

Tired and dull, weary and sad, I went below to the wardroom and seated myself on a rocking chair. It was now that I began to feel the discomfort of not having a cabin. Being merely a supernumerary or passenger, such a luxury was of course out of the question, even had I been an admiral. I was to have a screen berth, or what a landsman would call a canvas tent, on the main or fighting deck, but as yet it was not rigged. Had I never been to sea before, I would have now felt very wretched indeed; but having roughed it in Greenland and Davis Straits in small whaling brigs, I had got over the weakness of sea-sickness; yet notwithstanding I felt all the thorough prostration both of mind and body, which the first twenty-four hours at sea often produces in the oldest and best of sailors, so that I was

only too happy when I at last found myself within canvas.

By next morning the wind had freshened, and when I turned out I found that the steam had been turned off, and that we were bowling along before a ten-knot breeze. All that day the wind blew strongly from the N.N.E., and increased as night came on to a regular gale of wind. I had seen some wild weather in the Greenland Ocean, but never anything before, nor since, to equal the violence of the storm on that dreadful night, in the Bay of Biscay. We were running dead before the wind at twelve o'clock, when the gale was at its worst, and when the order to light fires and get up steam had been given. Just then we were making fourteen knots, with only a foresail, a foretopsail, and main-topsail, the latter two close-reefed. I was awakened by a terrific noise on deck, and I shall not soon forget that awakening. The ship was leaking badly both at the ports and scupper-holes; so that the maindeck all around was flooded with water, which lifted my big chest every time the roll of the vessel allowed it to flow towards it. To say the ship was rolling would express but poorly the indescribably disagreeable wallowing motion of the frigate, while men were staggering with anxious faces from gun to gun, seeing that the lashings were all secure; so great was the strain on the cable-like ropes that kept them in their places. The shot had got loose from the racks, and were having a small cannonade on their own account, to the no small consternation of the men whose duty it was to re-secure them. It was literally sea without and sea within, for the

green waves were pouring down the main hatchway, adding to the amount of water already *below*, where the chairs and other articles of domestic utility were all afloat and making voyages of discovery from one officer's cabin to another.

On the upper deck all was darkness, confusion, and danger, for both the fore and main topsails had been carried away at the same time, reducing us to one sail—the foresail. The noise and crackling of the riven canvas, mingling with the continuous roar of the storm, were at times increased by the rattle of thunder and the rush of rain-drops, while the lightning played continually around the slippery masts and cordage. About one o'clock, a large ship, apparently unmanageable, was dimly seen for one moment close aboard of us—had we come into collision the consequences must have been dreadful; —and thus for two long hours, *till steam was got up*, did we fly before the gale, after which the danger was comparatively small.

Having spent its fury, having in fact blown itself out of breath, the wind next day retired to its cave, and the waves got smaller and beautifully less, till peace and quietness once more reigned around us.

Going on deck one morning I found we were anchored under the very shadow of a steep rock, and not far from a pretty little town at the foot of a high mountain, which was itself covered to the top with trees and verdure, with the white walls of many a quaint-looking edifice peeping through the green—boats, laden with fruit and fish and turtle, surrounded the ship. The island of Madeira and

town of Funchal. As there was no pier, we had to land among the stones. The principal amusement of English residents here seems to be lounging about, cheroot in mouth, beneath the rows of trees that droop over the pavements, getting carried about in portable hammocks, and walking or riding (I rode, and, not being able to get my horse to move at a suitable pace, I looked behind, and found the boy from whom I had hired him sticking like a leech to my animal's tail, nor would he be shaken off—nor could the horse be induced to kick him off; this is the custom of the Funchalites, and a funny one it is) to the top of the mountain, for the pleasure of coming down in a sleigh, a distance of two miles, in twice as many minutes, while the least deviation from the path would result in a terrible smash against the wall of either side, but I never heard of any such accident occurring.

Three days at Madeira, and up anchor again; our next place of call being St. Helena. Every one has heard of the gentleman who wanted to conquer the world but couldn't, who tried to beat the British but didn't, who staked his last crown at a game of *loo*, and losing fled, and fleeing was chased, and being chased was caught and chained by the leg, like an obstreperous game-cock, to a rock somewhere in the middle of the sea, on which he stood night and day for years, with his arms folded across his chest, and his cocked-hat wrong on, a warning to the unco-ambitious. The rock was St. Helena, and a very beautiful rock it is too, hill and dell and thriving town, its mountain-sides tilled and its straths and glens containing many a fertile little

farm. It is the duty of every one who touches the shores of this far-famed island to make a pilgrimage to Longwood, the burial-place of the "great man." I have no intention of describing this pilgrimage, for this has been done by dozens before my time, or, if not, it ought to have been: I shall merely add a very noticeable fact, which others may not perchance have observed—*both sides* of the road all the way to the tomb are strewn with *Bass's beer-bottles*, empty of course, and at the grave itself there are hogsheads of them; and the same is the case at every place which John Bull has visited, or where English foot has ever trodden. The rule holds good all over the world; and in the Indian Ocean, whenever I found an uninhabited island, or even reef which at some future day would be an island, if I did not likewise find an empty beer-bottle, I at once took possession in the name of Queen Victoria, giving three hips! and one hurrah! thrice, and singing "For he's a jolly good fellow," without any very distinct notion as to who *was* the jolly fellow; also adding more decidedly "which no-body can deny"—there being no one on the island to deny it.

England has in this way acquired much additional territory at my hands, without my having as yet received any very substantial recompense for my services.

CHAPTER VII.

THE MODERN RODERICK RANDOM. HALF A SERVANT. A PRETTY PICTURE.

THE duties of the assistant-surgeon—the modern Roderick Random—on board a line-of-battle ship are seldom very onerous in time of peace, and often not worth mentioning. Suppose, for example, the reader is that officer. At five bells—half-past six—in the morning, if you happen to be a light sleeper, you will be sensible of some one gliding silently into your cabin, rifling your pockets, and extracting your watch, your money, and other your trinkets; but do not jump out of bed, pray, with the intention of collaring him; it is no thief—only your servant. Formerly this official used to be a marine, with whom on joining your ship you bargained in the following manner.

The marine walked up to you and touched his front hair, saying at the same time,—

"*I* don't mind looking arter you, sir," or "I'll do for you, sir." On which you would reply,—

"All right! what's your name?" and he would answer "Cheeks," or whatever his name might be. (Cheeks, that is the real Cheeks, being a sort of visionary soldier—a phantom marine—and very useful at times, answering in fact to the Nobody of

higher quarters, who is to blame for so many things, —"Nobody is to blame," and "Cheeks is to blame," being synonymous sentences.)

Now-a-days Government kindly allows each commissioned officer one half of a servant, or one whole one between two officers, which, at times, is found to be rather an awkward arrangement; as, for instance, you and, say, the lieutenant of marines, have each the half of the same servant, and you wish your half to go on shore with a message, and the lieutenant requires his half to remain on board: the question then comes to be one which only the wisdom of Solomon could solve, in the same way that Alexander the Great loosed the Gordian knot.

Your servant, then, on entering your cabin in the morning, carefully and quietly deposits the contents of your pockets on your table, and, taking all your clothes and your boots in his arms, silently flits from view, and shortly after re-enters, having in the interval neatly folded and brushed them. You are just turning round to go to sleep again, when

"Six bells, sir, please," remarks your man, laying his hand on your elbow, and giving you a gentle shake to insure your resuscitation, and which will generally have the effect of causing you to spring at once from your cot, perhaps in your hurry nearly upsetting the cup of delicious ship's cocoa which he has kindly saved to you from his own breakfast—a no small sacrifice either, if you bear in mind that his own allowance is by no means very large, and that his breakfast consists of cocoa and biscuits alone—these last too often containing more weevils

than flour.* As you hurry into your bath, your servant coolly informs you—

"Plenty of time, sir. Doctor himself hain't turned out yet."

"Then," you inquire, "it isn't six bells?"

"Not a bit on it, sir," he replies; "wants the quarter."

The rogue has lied to get you up.

At seven o'clock exactly you make your way forward to the sick-bay, on the lower deck at the ship's bows. Now, this making your way forward isn't by any means such an easy task as one might imagine; for at that hour the deck is swarming with the men at their toilet, stripped to the waist, every man at his tub, lathering, splashing, scrubbing and rubbing, talking, laughing, joking, singing, sweating, and swearing. Finding your way obstructed, you venture to touch one mildly on the bare back, as a hint to move aside and let you pass; the man immediately d—ns your eyes, then begs pardon, and says he thought it was Bill "at his lark again." Another who is bending down over his tub you touch more firmly on the *os innominatum*, and ask him in a free and easy sort of tone to "slue round there." He "slues round," very quickly too, but unfortunately in the wrong direction, and ten to one capsizes you in a tub of dirty soapsuds. Having picked yourself up, you pursue your journey, and sing out as a general sort of warning—

* For the benefit of those happy individuals who never saw, or had to eat, weevils, I may here state that they are small beetles of the exact size and shape of the common woodlouse, and that the taste is rather insipid, with a slight flavour of boiled beans. Never have tasted the woodlouse, but should think the flavour would be quite similar.

"Gangway there, lads," which causes at least a dozen of these worthies to pass such ironical remarks to their companions as

"Out of the doctor's way there, Tom."

"Let the gentleman pass, can't you, Jack?"

"Port your helm, Mat; the doctor wants you to."

"Round with your stern, Bill; the surgeon's *mate* is a passing."

"Kick that donkey Jones out of the doctor's road,"—while at the same time it is always the speaker himself who is in the way.

At last, however, you reach the sick-bay in safety, and retire within the screen. Here, if a strict service man, you will find the surgeon already seated; and presently the other assistant enters, and the work is begun. There is a sick-bay man, or dispenser, and a sick-bay cook, attached to the medical department. The surgeon generally does the brain-work, and the assistants the finger-work; and, to their shame be it spoken, there are some surgeons too proud to consult their younger brethren, whom they treat as assistant-drudges, not assistant-surgeons.

At eight o'clock—before or after,—the work is over, and you are off to breakfast.

At nine o'clock the drum beats, when every one, not otherwise engaged, is required to muster on the quarter-deck, every officer as he comes up lifting his cap, not to the captain, but to the Queen. After inspection the parson reads prayers; you are then free to write, or read, or anything else in reason you choose; and, if in harbour, you may go on shore—boats leaving the ship at regular hours for

the convenience of the officers—always premising that one medical man be left on board, in case of accident. In most foreign ports where a ship may be lying, there is no want of both pleasure and excitement on shore. Take for example the little town of Simon's, about twenty miles from Cape Town, with a population of not less than four thousand of Englishmen, Dutch, Malays, Caffres, and Hottentots. The bay is large, and almost land-locked. The little white town is built along the foot of a lofty mountain. Beautiful walks can be had in every direction, along the hard sandy sea-beach, over the mountains and on to extensive table-lands, or away up into dark rocky dingles and heath-clad glens. Nothing can surpass the beauty of the scenery, or the gorgeous loveliness of the wild heaths and geraniums everywhere abounding. There is a good hotel and billiard-room; and you can shoot where, when, and what you please—monkeys, pigeons, rock rabbits, wild ducks, or cobra-di-capellas. If you long for more society, or want to see life, get a day or two days' leave. Rise at five o'olock; the morning will be lovely and clear, with the mist rising from its flowery bed on the mountain's brow, and the sun, large and red, entering on a sky to which nor pen nor pencil could do justice. The cart is waiting for you at the hotel, with an awning spread above. Jump in: crack goes the long Caffre whip; away with a plunge and a jerk go the three pairs of Caffre horses, and along the sea-shore you dash, with the cool sea-breeze in your face, and the water, green and clear, rippling up over the horses' feet; then, amid such scenery, with such exhilarat-

ing weather, in such a life-giving climate, if you don't feel a glow of pleasure that will send the blood tingling through your veins, from the points of your ten toes to the extreme end of your eyelashes, there must be something radically and constitutionally wrong with you, and the sooner you go on board and dose yourself with calomel and jalap the better.

Arrived at Cape Town, a few introductions will simply throw the whole city at your command, and all it contains.

I do not intend this as a complete sketch of your trip, or I would have mentioned some of the many beautiful spots and places of interest you pass on the road—Rathfeldas for example, a hotel halfway, a house buried in sweetness; and the country round about, with its dark waving forests, its fruitful fields and wide-spreading vineyards, where the grape seems to grow almost without cultivation; its comfortable farm-houses; and above all its people, kind, generous, and hospitable as the country is prolific.

So you see, dear reader, a navy surgeon's life hath its pleasures. Ah, indeed, it hath! and sorry I am to add, its sufferings too; for a few pages farther on the picture must change: if we get the lights we must needs take the shadows also.

CHAPTER VIII.

A GOOD DINNER. ENEMY ON THE PORT-BOW. MAN THE LIFE-BOAT.

We will suppose that the reader still occupies the position of assistant-surgeon in a crack frigate or saucy line-of-battle ship. If you go on shore for a walk in the forenoon you may return to lunch at twelve; or if you have extended your ramble far into the country, or gone to visit a friend or lady-love—though for the latter the gloaming hour is to be preferred—you will in all probability have succeeded in establishing an appetite by ha f-past five, when the officers' dinner-boat leaves the pier.

Now, I believe there are few people in the world to whom a good dinner does not prove an attraction, and this is what in a large ship one is always pretty sure of, more especially on guest-nights, which are evenings set apart—one every week—for the entertainment of the officers' friends, one or more of whom any officer may invite, by previously letting the mess-caterer know of his intention. The mess-caterer is the officer who has been elected to superintend the victualling, as the wine-caterer does the liquor department, and a by-no-means-enviable position it is, and consequently it is for ever changing hands. Sailors are proverbial growlers, and, indeed, a certain amount of growling is, and ought to be, permitted in every mess; but it

is scarcely fair for an officer, because his breakfast does not please him, or if he can't get butter to his cheese after dinner, to launch forth his indignation at the poor mess-caterer, who most likely is doing all he can to please. These growlers too never speak right out or directly to the point. It is all under-the-table stabbing.

"Such and such a ship that I was in," says growler first, "and such and such a mess—"

"Oh, by George!" says growler second, "*I* knew that ship; that was a mess, and no mistake!"

"Why, yes," replies number one, "the lunch we got there was better than the dinner we have in this old clothes-basket."

On guest-nights your friend sits beside yourself, of course, and you attend to his corporeal wants. One of the nicest things about the service, in my opinion, is the having the band every day at dinner; then too everything is so orderly; with our president and vice-president, it is quite like a pleasure party every evening; so that altogether the dinner, while in harbour, comes to be the great event of the day. And after the cloth has been removed, and the president, with a preliminary rap on the table to draw attention, has given the only toast of the evening, the Queen, and due honour has been paid thereto, and the bandmaster, who has been keeking in at the door every minute for the last ten, that he might not make a mistake in the time, has played "God save the Queen," and returned again to waltzes, quadrilles, or selections from operas,—then it is very pleasant and delightful to loll over our walnuts and wine, and half-dream away the half-hour

till coffee is served. Then, to be sure, that little cigar in our canvas smoking-room outside the ward-room door, though the last, is by no means the least pleasant part of the *déjeuner*. For my own part, I enjoy the succeeding hour or so as much as any: when, reclining in an easy chair, in a quiet corner, I can sip my tea, and enjoy my favourite author to my heart's content. You must spare half an hour, however, to pay your last visit to the sick; but this will only tend to make you appreciate your ease all the more when you have done. So the evening wears away, and by ten o'clock you will probably just be sufficiently tired to enjoy thoroughly your little swing-cot and your cool white sheets.

At sea, luncheon, or tiffin, is dispensed with, and you dine at half-past two. Not much difference in the quality of viands after all, for now-a-days everything worth eating can be procured, in hermetically sealed tins, capable of remaining fresh for any length of time.

There is one little bit of the routine of the service, which at first one may consider a hardship.

You are probably enjoying your deepest, sweetest sleep, rocked in the cradle of the deep, and gently swaying to and fro in your little cot; you had turned in with the delicious consciousness of safety, for well you knew that the ship was far away at sea, far from rock or reef or deadly shoal, and that the night was clear and collision very improbable, so you are slumbering like a babe on its mother's breast—as you are for that matter—for the second night-watch is half spent; when, mingling confusedly with your dreams, comes the roll of the drum; you

start and listen. There is a moment's pause, when birr-r-r-r it goes again, and as you spring from your couch you hear it the third time. And now you can distinguish the shouts of officers and petty officers, high over the din of the trampling of many feet, of the battening down of hatches, of the unmooring of great guns, and of heavy ropes and bars falling on the deck: then succeeds a dead silence,* soon broken by the voice of the commander thundering, "Enemy on the port bow;" and then, and not till then, do you know it is no real engagement, but the monthly night-quarters. And you can't help feeling sorry there isn't a real enemy on the port bow, or either bow, as you hurry away to the cockpit, with the guns rattling all the while overhead, as if a real live thunderstorm were being taken on board, and was objecting to be stowed away. So you lay out your instruments, your sponges, your bottles of wine, and your buckets of water, and, seating yourself in the midst, begin to read 'Midsummer Night's Dream,' ready at a moment's notice to amputate the leg of any man on board, whether captain, cook, or cabin-boy.

Another nice little amusement the officer of the watch may give himself on fine clear nights is to set fire to and let go the life-buoy, at the same time singing out at the top of his voice, "Man overboard."

A boatswain's mate at once repeats the call, and vociferates down the main hatchway, "Life-boat's crew a-ho-oy!"

* In our navy a few short but expressive moments of silence ever precede the battle, that both officers and men may hold communion with their God.

The men belonging to this boat, who have been lying here and there asleep but dressed, quickly tumble up the ladder pell-mell; there is a rattling of oars heard, and the creaking of pulleys, then a splash in the water alongside, the boat darts away from the ship like an arrow from a bow, and the crew, rowing towards the blazing buoy, save the life of the unhappy man, Cheeks the marine.

And thus do British sailors rule the waves and keep old Neptune in his own place.

CHAPTER IX.

CONTAINING—IF NOT THE WHOLE—NOTHING BUT THE TRUTH.

If the disposing, in the service, of even a ship-load of assistant-surgeons, is considered a matter of small moment, my disposal, after reaching the Cape of Good Hope, needs but small comment. I was very soon appointed to take charge of a gunboat, in lieu of a gentleman who was sent to the Naval Hospital of Simon's Town, to fill a death vacancy—for the navy as well as nature abhors a vacuum. I had seen the bright side of the service, I was now to have my turn of the dark; I had enjoyed life on board a crack frigate, I was now to rough it in a gunboat.

The east coast of Africa was to be our cruising ground, and our ship a pigmy steamer, with plenty fore-and-aft about her, but nothing else; in fact, she was Euclid's definition of a line to a *t*, length without breadth, and small enough to have done "excellently well" as a Gravesend tug-boat. Her teeth were five: namely, one gigantic cannon, a 65-pounder, as front tooth; on each side a brass howitzer; and flanking these, two canine tusks in shape of a couple of 12-pounder Armstrongs. With this armament we were to lord it with a high hand over the Indian Ocean; carry fire and sword, or, failing sword, the cutlass, into the very heart of slavery's dominions;

the Arabs should tremble at the roar of our guns and the thunder of our bursting shells, while the slaves should clank their chains in joyful anticipation of our coming; and best of all, we—the officers—should fill our pockets with prize-money to spend when we again reached the shores of merry England. Unfortunately, this last premeditation was the only one which sustained disappointment, for, our little craft being tender to the flag-ship of the station, all our hard-earned prize-money had to be equally shared with her officers and crew, which reduced the shares to fewer pence each than they otherwise would have been pounds, and which was a burning shame.

It was the Cape winter when I joined the gunboat. The hills were covered with purple and green, the air was deliciously cool, and the far-away mountain-tops were clad in virgin snow. It was twelve o'clock noon when I took my traps on board, and found my new messmates seated around the table at tiffin. The gunroom, called the wardroom by courtesy—for the after cabin was occupied by the lieutenant commanding—was a little morsel of an apartment, which the table and five cane-bottomed chairs entirely filled. The officers were five—namely, a little round-faced, dimple-cheeked, good-natured fellow, who was our second-master; a tall and rather awkward-looking young gentleman, our midshipman; a lean, pert, and withal diminutive youth, brimful of his own importance, our assistant-paymaster; a fair-haired, bright-eyed, laughing boy from Cornwall, our sub-lieutenant; and a "wee wee man," dapper, clean, and tidy, our engineer, admitted to this mess

because he was so thorough an exception to his class, which is celebrated more for the unctuosity of its outer than for the smoothness of its inner man.

"Come along, old fellow," said our navigator, addressing me as I entered the mess-room, bobbing and bowing to evade fracture of the cranium by coming into collision with the transverse beams of the deck above—"come along and join us, we don't dine till four."

"And precious little to dine upon," said the officer on his right.

"Steward, let us have the rum,"* cried the first speaker.

And thus addressed, the steward shuffled in, bearing in his hand a black bottle, and apparently in imminent danger of choking himself on a large mouthful of bread and butter. This functionary's dress was remarkable rather for its simplicity than its purity, consisting merely of a pair of dirty canvas pants, a pair of purser's shoes—innocent as yet of blacking—and a greasy flannel shirt. But, indeed, uniform seemed to be the exception, and not the rule, of the mess, for, while one wore a blue serge jacket, another was arrayed in white linen, and the rest had neither jacket nor vest.

The table was guiltless of a cloth, and littered with beer-bottles, biscuits, onions, sardines, and pats of butter.

"Look out there, Waddles!" exclaimed the sub-

* Officers, as well as men, are allowed one half-gill of rum daily, with this difference,—the former pay for theirs, while the latter do not.

lieutenant; "that beggar Dawson is having his own whack o' grog and everybody else's."

"Dang it! I'll have *my* tot to-day, I know," said the assistant-paymaster, snatching the bottle from Dawson, and helping himself to a very liberal allowance of the ruby fluid.

"What a cheek the fellow's got!" cried the midshipman, snatching the glass from the table and bolting the contents at a gulp, adding, with a gasp of satisfaction as he put down the empty tumbler, "The chap thinks nobody's got a soul to be saved but himself."

"Soul or no soul," replied the youthful man of money as he gazed disconsolately at the empty glass, "my *spirit 's* gone."

"Blessed," said the engineer, shaking the black bottle, "if you devils have left me a drain! see if I don't look out for A 1 to-morrow."

"Where's the doctor's grog?" cried the sub-lieutenant.

"Ay, where's the doctor's?" said another.

"Where is the doctor's?" said a third.

And they all said "Where is the doctor's?" and echo answered "Where?"

"Steward!" said the middy.

"Ay, ay, sir."

"See if that beggarly bumboat-man is alongside, and get me another pat of butter and some soft tack; get the grub first, then tell him I'll pay to-morrow."

These and such like scraps of conversation began to give me a little insight into the kind of mess I had joined and the character of my future messmates. "Steward," said I, "show me my cabin." He

did so; indeed, he hadn't far to go. It was the aftermost, and consequently the smallest, although I *ought* to have had my choice. It was the most miserable little box I ever reposed in. Had I owned such a place on shore, I *might* have been induced to keep rabbits in it, or guinea-pigs, but certainly not pigeons. Its length was barely six feet, its width four above my cot and two below, and it was minus sufficient standing-room for any ordinary-sized sailor; it was, indeed, a cabin for a commodore—I mean Commodore Nutt—and was ventilated by a scuttle seven inches in diameter, which could only be removed in harbour, and below which, when we first went to sea, I was fain to hang a leather hat-box to catch the water; unfortunately the bottom rotted out, and I was then at the mercy of the waves.

My cabin, or rather—to stick to the plain unvarnished truth—my burrow, was alive with scorpions, cockroaches, ants, and other "crawlin' ferlies"

"That e'en to name would be unlawfu'."

My dispensary was off the steerage, and sister-cabin to the pantry. To it I gained access by a species of crab-walking, squeezing myself past a large brass pump, and edging my body in sideways. The sick came one by one to the dispensary door, and there I saw and treated each case as it arrived, dressed the wounds and bruises and putrifying sores, and bandaged the bad legs. There was no sick-berth attendant; to be sure the lieutenant-in-command, at my request, told off "a little cabin-boy" for my especial use. I had no cause for delectation on such an acquisition, by no means; he was

not a model cabin-boy like what you see in theatres, and I believe will never become an admiral. He managed at times to wash out the dispensary, or gather cockroaches, and make the poultices—only in doing the first he broke the bottles, and in performing the last duty he either let the poultice burn or put salt in it; and, finally, he smashed my pot, and I kicked him forward, and demanded another. *He* was slightly better, only he was seldom visible; and when I set him to do anything, he at once went off into a sweet slumber; so I kicked him forward too, and had in despair to become my own menial. In both dispensary and burrow it was quite a difficult business to prevent everything going to speedy destruction. The best portions of my uniform got eaten by cockroaches or moulded by damp, while my instruments required cleaning every morning, and even that did not keep rust at bay.

Imagine yourself, dear reader, in any of the following interesting positions:—

Very thirsty, and nothing but boiling hot newly distilled water to drink; or wishing a cool bath of a morning, and finding the water in your can only a little short of 212° Fahrenheit.

To find, when you awake, a couple of cockroaches, two inches in length, busy picking your teeth.

To find one in a state of decay in the mustard-pot.

To have to arrange all the droppings and eggs of these interesting creatures on the edge of your plate, previous to eating your soup.

To have to beat out the dust and weevils from every square inch of biscuit before putting it in your mouth.

To be looking for a book and put your hand on a full-grown scaly scorpion. Nice sensation—the animal twining round your finger, or running up your sleeve. *Dénoûment*—cracking him under foot—full-flavoured bouquet—joy at escaping a sting.

You are enjoying your dinner, but have been for some time sensible of a strange titivating feeling about the region of your ankle; you look down at last to find a centipede on your sock, with his fifty hind-legs—you thank God not his fore fifty—abutting on to your shin. *Tableau*—green and red light from the eyes of the many-legged; horror of yourself as you wait till he thinks proper to "move on."

To awake in the morning, and find a large and healthy-looking tarantula squatting on your pillow within ten inches of your nose, with his basilisk eyes fixed on yours, and apparently saying, "You're only just awake, are you? I've been sitting here all the morning watching you."

You know if you move he'll bite you, somewhere; and if he *does* bite you, you'll go mad and dance *ad libitum;* so you twist your mouth in the opposite direction and ejaculate—

"Steward!" but the steward does not come—in fact he is forward, seeing after the breakfast. Meanwhile the gentleman on the pillow is moving his horizontal mandibles in a most threatening manner, and just as he makes a rush for your nose you tumble out of bed with a shriek; and, if a very nervous person, probably run on deck in your shirt.

Or, to fall asleep under the following circumstances: The bulkheads, all around, black with cock-and-hen-

roaches, a few of which are engaged cropping your toe-nails, or running off with little bits of the skin of your calves; bugs in the crevices of your cot, a flea tickling the sole of your foot, a troop of ants carrying a dead cockroach over your pillow, lively mosquitoes attacking you everywhere, hammer-legged flies occasionally settling on your nose, rats running in and rats running out, your lamp just going out, and the delicious certainty that an indefinite number of earwigs and scorpions, besides two centipedes and a tarantula, are hiding themselves somewhere in your cabin.

CHAPTER X.

ROUND THE CAPE AND UP THE 'BIQUE. SLAVER-HUNTING.

It was a dark grey cloudy forenoon when we "up anchor" and sailed from Simon's Bay. Frequent squalls whitened the water, and there was every indication of our being about to have dirty weather; and the tokens told no lies. To our little craft, however, the foul weather that followed seemed to be a matter of very little moment; for, when the wind or waves were in any way high, she kept snugly below water, evidently thinking more of her own convenience than our comfort, for such a procedure on her part necessitated our leading a sort of amphibious existence, better suited to the tastes of frogs than human beings. Our beds too, or matresses, became converted into gigantic poultices, in which we nightly steamed, like as many porkers newly shaven. Judging from the amount of salt which got encrusted on our skins, there was little need to fear danger, we were well preserved—so much so indeed, that, but for the constant use of the matutinal freshwater bath, we would doubtless have shared the fate of Lot's wife and been turned into pillars of salt.

After being a few days at sea the wind began to moderate, and finally died away; and instead thereof we had thunderstorms and waves, which, if not so

big as mountains, would certainly have made pretty large hills.

Many a night did we linger on deck till well nigh morning, entranced by the sublime beauty and terrible grandeur of those thunderstorms. The roar and rattle of heaven's artillery; the incessant *floods* of lightning—crimson, blue, or white; our little craft hanging by the bows to the crest of each huge inky billow, or next moment buried in the valley of the waves, with a wall of black waters on every side; the wet deck, the slippery shrouds, and the faces of the men holding on to the ropes and appearing so strangely pale in the electric light; I see the whole picture even now as I write—a picture, indeed, that can never, never fade from my memory.

Our cruising "ground" lay between the island and town of Mozambique in the south, to about Magadoxa, some seven or eight degrees north of the Equator.

Nearly the whole of the slave-trade is carried on by the Arabs, one or two Spaniards sometimes engaging in it likewise. The slaves are brought from the far interior of South Africa, where they can be purchased for a small bag of rice each. They are taken down in chained gangs to the coast, and there in some secluded bay the dhows lie, waiting to take them on board and convey them to the slave-mart at Zanzibar, to which place Arab merchants come from the most distant parts of Arabia and Persia to buy them. Dhows are vessels with one or two masts, and a corresponding number of large sails, and of a very peculiar construction, being

shaped somewhat like a short or Blucher boot, the high part of the boot representing the poop. They have a thatched roof over the deck, the projecting eaves of which render boarding exceedingly difficult to an enemy.

Sometimes, on rounding the corner of a lagoon island, we would quietly and unexpectedly steam into the midst of a fleet of thirty to forty of these queer-looking vessels, very much to our own satisfaction, and their intense consternation. Imagine a cat popping down among as many mice, and you will be able to form some idea of the scramble that followed. However, by dint of steaming here and there, and expending a great deal of shot and shell, we generally managed to keep them together as a dog would a flock of sheep, until we examined all their papers with the aid of our interpreter, and probably picked out a prize.

I wish I could say the prizes were anything like numerous; for perhaps one-half of all the vessels we board are illicit slaveholders, and yet we cannot lay a finger on them. One may well ask why? It has been said, and it is generally believed in England, that our cruisers are sweeping the Indian Ocean of slavers, and stamping out the curse. But the truth is very different, and all that we are doing, or able at present to do, is but to pull an occasional hair from the hoary locks of the fiend Slavery. This can be proved from the return-sheets, which every cruiser sends home, of the number of vessels boarded, generally averaging one thousand yearly to each man-o'-war, of which the half at least have slaves or slave-irons on board; but only

two, or at most three, of these will become prizes. The reason of this will easily be understood, when the reader is informed, that the Sultan of Zanzibar has liberty to take any number of slaves from any one portion of his dominions to another: these are called household slaves; and, as his dominions stretch nearly all along the eastern shores of Africa, it is only necessary for the slave-dealer to get his sanction and seal to his papers in order to steer clear of British law. This, in almost every case, can be accomplished by means of a bribe. So slavery flourishes, the Sultan draws a good fat revenue from it, and the Portuguese—no great friends to us at any time—laugh and wink to see John Bull paying his thousands yearly for next to nothing. Supposing we liberate even two thousand slaves a year, which I am not sure we do however, there are on the lowest estimate six hundred slaves bought and sold daily in Zanzibar mart; two hundred and nineteen thousand in a twelvemonth; and, of our two thousand that are set free in Zanzibar, most, if not all, by and-bye, become bondsmen again.

I am not an advocate for slavery, and would like to see a wholesale raid made against it, but I do not believe in the retail system; selling freedom in pennyworths, and spending millions in doing it, is very like burning a penny candle in seeking for a cent. Yet I sincerely believe, that there is more good done to the spread of civilization and religion in one year, by the slave-traffic, than all our missionaries can do in a hundred. Don't open your eyes and smile incredulously, intelligent reader; we live in an age when every question is looked at on

both sides, and why should not this? What becomes of the hundreds of thousands of slaves that are taken from Africa? They are sold to the Arabs—that wonderful race, who have been second only to Christians in the good they have done to civilization; they are taken from a state of degradation, bestiality, and wretchedness, worse by far than that of the wild beasts, and from a part of the country too that is almost unfit to live in, and carried to more favoured lands, spread over the sunny shores of fertile Persia and Arabia, fed and clothed and cared for; after a few years of faithful service they are even called sons and feed at their master's table —taught all the trades and useful arts, besides the Mahommedan religion, which is certainly better than none—and, above all, have a better chance given them of one day hearing and learning the beautiful tenets of Christianity, the religion of love.

I have met with few slaves who after a few years did not say, "Praised be Allah for the good day I was take from me coontry!" and whose only wish to return was, that they might bring away some aged parent, or beloved sister, from the dark cheerless home of their infancy.

Means and measures much more energetic must be brought into action if the stronghold of slavedom is to be stormed, and, if not, it were better to leave it alone. "If the work be of God ye cannot overthrow it; lest haply ye be found to fight even against God."

CHAPTER XI.

AN UNLUCKY SHIP. THE DAYS WHEN WE WENT GIPSYING. INAMBANE. QUILP THE PILOT AND LAMOO.

It might have been that our vessel was launched on a Friday, or sailed on a Friday; or whether it was owing to our carrying the devil on board of us in shape of a big jet-black cat, and for whom the life-buoy was thrice let go, and boats lowered in order to save his infernal majesty from a watery grave; but whatever was the reason, she was certainly a most unlucky ship from first to last; for during a cruise of eighteen months, four times did we run aground on dangerous reefs, twice were we on fire—once having had to scuttle the decks—once we sprung a bad leak and were nearly foundering, several times we narrowly escaped the same speedy termination to our cruise by being taken aback, while, compared to our smaller dangers or lesser perils, St. Paul's adventures—as a Yankee would express it—wern't a circumstance.

On the other hand, we were amply repaid by the many beautiful spots we visited; the lovely wooded creeks where the slave-dhows played at hide and seek with us, and the natural harbours, at times surrounded by scenery so sweetly beautiful and so charmingly solitary, that, if fairies still linger on this earth, one must think they would choose just

such places as these for their moonlight revels. Then there were so many little towns—Portuguese settlements—to be visited, for the Portuguese have spread themselves, after the manner of wild strawberries, all round the coast of Africa, from Sierra Leone on the west to Zanzibar on the east. There was as much sameness about these settlements as about our visits to them: a few houses—more like tents—built on the sand (it does seem funny to see sofas, chairs, and the piano itself standing among the deep soft sand); a fort, the guns of which, if fired, would bring down the walls; a few white-jacketed swarthy-looking soldiers; a very polite governor, brimful of hospitality and broken English; and a good dinner, winding up with punch of schnapps.

Memorable too are the pleasant boating excursions we had on the calm bosom of the Indian Ocean. Armed boats used to be detached to cruise for three or four weeks at a time in quest of prizes, at the end of which time they were picked up at some place of rendezvous. By day we sailed about the coast and around the small wooded islets, where dhows might lurk, only landing in sheltered nooks to cook and eat our food. Our provisions were ship's, but at times we drove great bargains with the naked natives for fowls and eggs and goats; then would we make delicious soups, rich ragouts, and curries fit for the king of the Cannibal Islands. Fruit too we had in plenty, and the best of oysters for the gathering, with iguana most succulent of lizards, occasionally fried flying-fish, or delicate morsels of shark, skip-jack, or devilled dolphin, with

a glass of prime rum to wash the whole down, and three grains of quinine to charm away the fever. There was, too, about these expeditions, an air of gipsying that was quite pleasant. To be sure our beds were a little hard, but we did not mind that; while clad in our blanket-suits, and covered with a boat-sail, we could defy the dew. Sleep, or rather the want of sleep, we seldom had to complain of, for the blue star-lit sky above us, the gentle rising and falling of the anchored boat, the lip-lipping of the water, and the sighing sound of the wind through the great forest near us—all tended to woo us to sweetest slumber.

Sometimes we would make long excursions up the rivers of Africa, combining business with pleasure, enjoying the trip, and at the same time gleaning some useful information regarding slave or slave-ship. The following sketch concerning one or two of these may tend to show, that a man does not take leave of all enjoyment, when his ship leaves the chalky cliffs of old England.

Our anchor was dropped outside the bar of Inambane river; the grating noise of the chain as it rattled through the hawse-hole awoke me, and I soon after went on deck. It was just six o'clock and a beautiful clear morning, with the sun rising red and rosy—like a portly gentleman getting up from his wine—and smiling over the sea in quite a pleasant sort of way. So, as both Neptune and Sol seemed propitious, the commander, our second master, and myself made up our minds to visit the little town and fort of Inambane, about forty—we thought fifteen—miles up the river. But breakfast had to

be prepared and eaten, the magazine and arms got into the boat, besides a day's provisions, with rum and quinine to be stowed away, so that the sun had got a good way up the sky, and now looked more like a portly gentleman whose dinner had disagreed, before we had got fairly under way and left the ship's side. Never was forenoon brighter or fairer, only one or two snowy banks of cloud interrupting the blue of the sky, while the river, miles broad, stole silently seaward, unruffled by wave or wavelet, so that the hearts of both men and officers were light as the air they breathed was pure. The men, bending cheerfully on their oars, sang snatches of Dibdin—Neptune's poet laureate; and we, tired of talking, reclined astern, gazing with half-shut eyes on the round undulating hills, that, covered with low mangrove-trees and large exotics, formed the banks of the river. We passed numerous small wooded islands and elevated sandbanks, on the edges of which whole regiments of long-legged birds waded about in search of food, or, starting at our approach, flew over our heads in Indian file, their bright scarlet-and-white plumage showing prettily against the blue of the sky. Shoals of turtle floated past, and hundreds of rainbow-coloured jelly-fishes, while, farther off, many large black bodies—the backs of hippopotomi—moved on the surface of the water, or anon disappeared with a sullen plash. Saving these sounds and the dip of our own oars, all was still, the silence of the desert reigned around us, the quiet of a newly created world.

The forenoon wore away, the river got narrower, but, though we could see a distance of ten miles be-

fore us, neither life nor sign of life could be perceived. At one o'clock we landed among a few cocoa-nut trees to eat our meagre dinner, a little salt pork, raw, and a bit of biscuit. No sooner had we "shoved off" again than the sky became overcast; we were caught in, and had to pull against, a blinding white-squall that would have laid a line-of-battle on her beam ends. The rain poured down as if from a water-spout, almost filling the boat and drenching us to the skin, and, not being able to see a yard ahead, our boat ran aground and stuck fast. It took us a good hour after the squall was over to drag her into deep water; nor were our misfortunes then at an end, for squall succeeded squall, and, having a journey of uncertain length still before us, we began to feel very miserable indeed.

It was long after four o'clock when, tired, wet, and hungry, we hailed with joy a large white house on a wooded promontory; it was the Governor's castle, and soon after we came in sight of the town itself. Situated so far in the interior of Africa, in a region so wild, few would have expected to find such a little paradise as we now beheld,—a colony of industrious Portuguese, a large fort and a company of soldiers, a governor and consulate, a town of nice little detached cottages, with rows of cocoa-nut, mango, and orange trees, and in fact all the necessaries, and luxuries of civilised life. It was, indeed, an oasis in the desert, and, to us, the most pleasant of pleasant surprises.

Leaving the men for a short time with the boat, we made our way to the house of the consul, a dapper little gentleman with a pretty wife and two

beautiful daughters — flowers that had hitherto blushed unseen and wasted their sweetness in the desert air.

Our welcome was most warm. After making us swallow a glass of brandy each to keep off fever, he kindly led us to a room, and made us strip off our wet garments, while a servant brought bundle after bundle of clothes, and spread them out before us. There were socks and shirts and slippers galore, with waistcoats, pantaloons, and head-dresses, and jackets, enough to have dressed an opera troupe. The commander and I furnished ourselves with a red Turkish fez and dark-grey dressing-gown each, with cord and tassels to correspond, and, thus arrayed, we considered ourselves of no small account. Our kind entertainers were waiting for us in the next room, where they had, in the mean time, been preparing for us the most fragrant of brandy punch. By-and-bye two officers and a tall Parsee dropped in, and for the next hour or so the conversation was of the most animated and lively description, although a bystander, had there been one, would not have been much edified, for the following reason: the younger daughter and myself were flirting in the ancient Latin language, with an occasional soft word in Spanish; our commander was talking in bad French to the consul's lady, who was replying in Portuguese; the second-master was maintaining a smart discussion in broken Italian with the elder daughter; the Parsee and officer of the fort chiming in, the former in English, the latter in Hindostanee; but as no one of the four could have had the slightest idea of the other's meaning, the amount of

information given and received must have been very small,—in fact, merely nominal. It must not, however, be supposed that our host or hostesses could speak *no* English, for the consul himself would frequently, and with a bow that was inimitable, push the bottle towards the commander, and say, as he shrugged his shoulders and turned his palms skywards, "Continue you, Sar Capitan, to wet your whistle;" and, more than once, the fair creature by my side would raise and did raise the glass to her lips, and say, as her eyes sought mine, "Good night, Sar Officeer," as if she meant me to be off to bed without a moment's delay, which I knew she did not. Then, when I responded to the toast, and complimented her on her knowledge of the "universal language," she added, with a pretty shake of the head, "No, Sar Officeer, I no can have speak the mooch Englese." A servant,—apparently newly out of prison, so closely was his hair cropped,—interrupted our pleasant confab, and removed the seat of our Babel to the dining-room, where as nicely-cooked-and-served a dinner as ever delighted the senses of hungry mortality awaited our attention. No large clumsy joints, huge misshapen roasts or bulky boils, hampered the board; but dainty made-dishes, savoury stews, piquant curries, delicate fricassees whose bouquet tempted even as their taste and flavour stimulated the appetite, strange little fishes as graceful in shape as lovely in colour, vegetables that only the rich luxuriance of an African garden could supply, and numerous other nameless nothings, with delicious wines and costly liqueurs, neatness, attention, and kindness, combined to form our repast, and

counteract a slight suspicion of crocodiles' tails and stewed lizard, for where ignorance is bliss a fellow is surely a fool if he is wise.

We spent a most pleasant evening in asking questions, spinning yarns, singing songs, and making love. The younger daughter—sweet child of the desert—sang 'Amante de alguno;' her sister played a selection from 'La Traviata;' next, the consul's lady favoured us with something pensive and sad, having reference, I think, to bright eyes, bleeding hearts, love, and slow death; then, the Parsee chanted a Persian hymn with an "Allalallala," instead of Fol-di-riddle-ido as a chorus, which elicited "Fra poco a me" from the Portuguese lieutenant; and this last caused our commander to seat himself at the piano, turn up the white of his eyes, and in very lugubrious tones question the probability of "Gentle Annie's" ever reappearing in any spring-time whatever; then, amid so much musical sentimentality and woe, it was not likely that I was to hold my peace, so I lifted up my voice and sang—

> "Cauld kail in Aberdeen,
> An' casticks in Strathbogie;
> Ilka chiel maun hae a quean
> Bit leeze me on ma cogie"—

with a pathos that caused the tears to trickle over and adown the nose of the younger daughter—she was of the gushing temperament—and didn't leave a dry eye in the room. The song brought down the house—so to speak—and I was the hero for the rest of the evening. Before parting for the night we also sang 'Auld lang syne,' copies of the words having been written out and distributed, to prevent

mistakes; this was supposed by our hostess to be the English national anthem.

It was with no small amount of regret that we parted from our friends next day; a fresh breeze carried us down stream, and, except our running aground once or twice, and being nearly drowned in crossing the bar, we arrived safely on board our saucy gunboat.

* * * * *

"Afric's sunny fountains" have been engaged for such a length of time in the poetical employment of "rolling down their golden sands," that a bank or bar of that same bright material has been formed at the mouth of every river, which it is very difficult and often dangerous to cross even in canoes. We had despatched boats before us to take soundings on the bar of Lamoo, and prepared to follow in the track thus marked out. Now, our little bark, although not warranted, like the Yankee boat, to float wherever there is a heavy dew, was nevertheless content with a very modest allowance of the aqueous element; in two and a half fathoms she was quite at home, and even in two—with the help of a few breakers—she never failed to bump it over a bar. We approached the bar of Lamoo, therefore, with a certain degree of confidence till the keel rasped on the sand; this caused us to turn astern till we rasped again; then, being neither able to get back nor forward, we stopped ship, put our fingers in our wise mouths, and tried to consider what next was to be done. Just then a small canoe was observed coming bobbing over the big waves that tumbled in on the bar; at one moment it was hidden behind a breaker,

next moment mounting over another, and so, after a little game at bo-peep, it got alongside, and from it there scrambled on board a little, little man, answering entirely to Dickens's description of Quilp.

"Quilp!" said the commander.

"Quilp!! by George!" repeated our second master.

"Quilp!!!" added I, "by all that's small and ugly."

"Your sarvant, sar," said Quilp himself. "I am one pilot." There certainly was not enough of him to make two. He was rather darker in skin than the Quilp of Dickens, and his only garment was a coal-sack without sleeves—no coal-sack *has* sleeves, however—begirt with a rope, in which a short knife was stuck; he had, besides, sandals on his feet, and his temples were begirt with a dirty dishclout by way of turban, and he repeated, "I am one pilot, sar."

"Can you take us over the bar?" asked the commander.

"How much water you?"

"Three fathoms."

"I do it, sar, plenty quick."

"Twenty shillings if you do."

"I do it, sar. I do him," cried the little man, as he mounted the bridge; then cocking his head to one side, and spreading out his arms like a badly feathered duck, he added, "Suppose I no do him plenty proper, you catchee me and make shot."

"If the vessel strikes, I'll hang you, sir."

Quilp grinned—which was his way of smiling.

"Up steam, sar!" he cried; the order was obeyed.

"Go 'head. Stabird a leetle."

"And a half three," sung the man in the chains; then, "And a half four;" and by-and-bye, "And a half three" again; followed next moment by, "By the deep three."

The commander was all in a fidget. We were on the dreaded bar; on each side of us the big waves curled and broke with a sullen boom like far-off thunder; only, where we were, no waves broke.

"Mind yourself now," cried the commander to Quilp; to which he in wrath replied—

"What for you stand there make bobbery? *I* is de cap'n; suppose you is fear, go alow, sar."

"And a quarter less three."

"Steady!" and a large wave broke right aboard of us, almost sweeping us from the deck, and lifting the ship's head into the sky. Another and another followed; but amid the wet and the spray, and the roar of the breakers, firmly stood the little pilot, coolly giving his orders, and never for an instant taking his eyes from the vessel's jib-boom and the distant shore, till we were safely through the surf, and quietly steaming up the river.

After proceeding some miles, native villages began to appear here and there on both shores, and the great number of dhows on the river, with boats and canoes of every description, told us we were nearing a large town. Two hours afterwards we were anchored under the guns of the Sultan's palace, which were belching forth fire and smoke in return for the salute we had fired. We found every creature and thing in Lamoo as entirely primitive, as absolutely foreign, as if it were a city in some other planet.

The most conspicuous building is the Sultan's lofty fort and palace, with its spacious steps, its fountains and marble halls. The streets are narrow and confused; the houses built in the Arab fashion, and in many cases connected by bridges at the top; the inhabitants about forty thousand, including Arabs, Persians, Hindoos, Somali Indians, and slaves. The wells, exceedingly deep, are built in the centre of the street without any protection; and girls, carrying on their heads calabashes, are continually passing to and from them. Slaves, two and two, bearing their burdens of cowries and ivory on poles between, and keeping step to an impromptu chant; black girls weaving mats and grass-cloth; strange-looking tradesmen, with stranger tools, at every door; rich merchants borne along in gilded palanquins; people praying on housetops; and the Sultan's ferocious soldiery prowling about, with swords as tall, and guns nearly twice as tall, as themselves; a large shark-market; a fine bazaar, with gold-dust, ivory, and tiger-skins exposed for sale; sprightly horses with gaudy trappings; solemn-looking camels; dust and stench and a general aroma of savage life and customs pervading the atmosphere, but law and order nevertheless. People of all religions agree like brothers. No spirituous liquor of any sort is sold in the town; the Sultan's soldiers go about the streets at night, smelling the breath of the suspected, and the faintest odour of the accursed fire-water dooms the poor mortal to fifty strokes with a thick bamboo-cane next morning. The sugar-cane grows wild in the fertile suburbs, amid a perfect forest of trees; farther out in the country the cottager

dwells beneath his few cocoa-nut trees, which supply him with all the necessaries of life. One tree for each member of his family is enough. *He* builds the house and fences with its large leaves; his wife prepares meat and drink, cloth and oil, from the nut; the space between the trees is cultivated for curry, and the spare nuts are sold to purchase luxuries, and the rent of twelve trees is only *sixpence* of our money. Happy country! no drunkenness, no debt, no religious strife, but peace and contentment everywhere! Reader, if you are in trouble, or your affairs are going "to pot," or if you are of opinion that this once favoured land is getting used up, I sincerely advise you to sell off your goods and be off to Lamoo.

CHAPTER XII.

PROS AND CONS.

Of the "gentlemen of England who live at home at ease," very few can know how entirely dependent for happiness one is on his neighbours. Man is out-and-out, or out-and-in, a gregarious animal, else 'Robinson Crusoe' had never been written. Now, I am sure that it is only correct to state that the majority of combatant* officers are, in simple language, jolly nice fellows, and as a class gentlemen, having, in fact, that fine sense of honour, that good-heartedness, which loves to do as it would be done by, which hurteth not the feelings of the humble, which turneth aside from the worm in its path, and delighteth not in plucking the wings from the helpless fly. To believe, however, that there are no exceptions to this rule would be to have faith in the speedy advent of the millennium, that happy period of lamb-and-lion-ism which we would all rather see than hear tell of; for human nature is by no means altered by bathing every morning in salt water, it is the same afloat as on shore. And there

* Combatant (from combat, a battle), fighting officers,—as if the medical officers didn't fight likewise. It would be better to take away the "combat," and leave the "ant"—ant-officers, as they do the work of the ship.

are many officers in the navy, who—"dressed in a little brief authority," and wearing an additional stripe—love to lord it over their fellow worms. Nor is this fault altogether absent from the medical profession itself.

It is in small gunboats, commanded perhaps by a lieutenant, and carrying only an assistant-surgeon, where a young medical officer feels all the hardships and despotism of the service; for if the lieutenant in command happens to be at all frog-hearted, he has then a splendid opportunity of puffing himself up.

In a large ship with from twenty to thirty officers in the mess, if you do not happen to meet with a kindred spirit at one end of the table, you can shift your chair to the other. But in a gunboat on foreign service, with merely a clerk, a blatant middy, and a second master who would fain be your senior, as your messmates, then, I say, God help you! unless you have the rare gift of doing anything for a quiet life. It is all nonsense to say, "Write a letter on service about any grievance;" you can't write about ten out of a thousand of the petty annoyances which go to make your life miserable; and if you do, you will be but little better, if, indeed, your last state be not worse than your first.

I have in my mind's eye even now a lieutenant who commanded a gunboat in which I served as medical officer in charge. This little man was what is called a sea-lawyer—my naval readers well know what I mean; he knew all the Admiralty Instructions, was an amateur engineer, only needed the title of M.D. to make him a doctor, could quibble and

quirk, and in fact could prove by the Queen's Regulations that your soul, to say nothing of your body, wasn't your own; that *you* were a slave, and *he* lord—god of all he surveyed. Peace be with him! he has gone to his account; he will not require an advocate, he can speak for himself. Not many such hath the service, I am happy to say. He was continually changing his poor hard-worked sub-lieutenants, and driving his engineers to drink, previously to trying them by court-martial. At first he and I got on very well; apparently he "loved me like a vera brither;" but we did not continue long "on the same platform," and, from the day we had the first difference of opinion, he was my foe, and a bitter one too. I assure you, reader, it gave me a poor idea of the service, for it was my first year. He was always on the outlook for faults, and his kindest words to me were "chaffing" me on my accent, or about my country. To be able to meet him on his own ground I studied the Instructions day and night, and tried to stick by them.

Malingering was common on board; one or two whom I caught I turned to duty: the men, knowing how matters stood between the commander and me, refused to work, and so I was had up and bullied on the quarter-deck for "neglect of duty" in not putting these fellows on the sick-list. After this I had to put every one that asked on the sick-list.

"Doctor," he would say to me on reporting the number sick, "this is *wondrous* strange—*thirteen* on the list, out of only ninety men. Why, sir, I've been in line-of-battle ships,—*line-of-battle* ships, sir,—where

they had not ten sick—*ten sick*, sir." This of course implied an insult to me, but I was like a sheep before the shearers, dumb.

On Sunday mornings I went with him the round of inspection; the sick who were able to be out of hammock were drawn up for review: had he been half as particular with the men under his own charge or with the ship in general as he was with the few sick, there would have been but little disease to treat. Instead of questioning *me* concerning their treatment, he interrogated the sick themselves, quarrelling with the medicine given, and pooh-pooh-ing my diagnosis. Those in hammocks, who most needed gentleness and comfort, he bullied, blamed for being ill, and rendered generally uneasy. Remonstrance on my part was either taken no notice of, or instantly checked. If men were reported by me for being dirty, giving impudence, or disobeying orders, *he* became their advocate—an able one too—and *I* had to retire, sorry I had spoken. But I would not tell the tenth part of what I had to suffer, because such men as he are the *exception*, and because he is dead. A little black baboon of a boy who attended on this lieutenant-commanding had one day incurred his displeasure: "Bo'swain's mate," cried he, "take my boy forward, hoist him on an ordinary seaman's back, and give him a rope's-ending; and," turning to me, "Doctor, you'll go and attend my boy's flogging."

I dared not trust myself to reply. With a face like crimson I rushed below to my cabin, and—how could I help it?—made a baby of myself for once; all

my pent-up feelings found vent in a long fit of crying.

True, I might in this case have written a letter to the service about my treatment; but, as it is not till after twelve months the assistant-surgeon is confirmed, the commander's word would have been taken before mine, and I probably dismissed without a court-martial.

That probationary year I consider more than a grievance, it is a *cruel injustice.*

Cabins? There is a regulation — of late more strictly enforced by a circular—that every medical officer serving on board his own ship shall have a cabin, and the choice—by rank—of cabin, and he is a fool if he does not enforce it. But it sometimes happens that a sub-lieutenant (who has no cabin) is promoted to lieutenant on a foreign station; he will then rank above the assistant-surgeon, and perhaps, if there is no spare cabin, the poor doctor will have to give up his, and take to a sea-chest and hammock, throwing all his curiosities, however valuable, overboard. It would be the duty of the captain in such a case to build an additional cabin, and if he did not, or would not, a letter to the admiral would make him.

Does the combatant officer treat the medical officer with respect? Certainly, unless one or other of the two be a snob: in the one case the respect is not worth having, in the other it can't be expected.

In the military branch you shall find many officers belonging to the best English families: these I need hardly say are for the most part gentlemen,

and gentle men. However, it is allowed in most messes that

> "The rank is but the guinea's stamp,
> A man 's a man for a' that;"

and I assure the candidate for a commission, that, if he is himself a gentleman, he will find no want of admirers in the navy. But there are some young doctors who enter the service, knowing their profession to be sure, and how to hold a knife and fork —not a carving-fork though—but knowing little else; yet even these soon settle down, and, if they are not dismissed by court-martial for knocking some one down at cards, or on the quarter-deck, turn out good service-officers. Indeed, after all, I question if it be good to know too much of fine-gentility on entering the service, for, although the navy officers one meets have much that is agreeable, honest, and true, there is through it all a vein of what can only be designated as the coarse. The science of conversation, that beautiful science that says and lets say, that can listen as well as speak, is but little studied. Mostly all the talk is "shop," or rather "ship." There is a want of tone in the discourse, a lack of refinement. The delicious chit-chat on new books, authors, poetry, music, or the drama, interspersed with anecdote, incident, and adventure, and enlivened with the laughter-raising pun or happy bon-mot, is, alas! but too seldom heard: the rough joke, the tales of women, ships, and former ship-mates, and the old, old, stale "good things,"—these are more fashionable at our navy mess-board. Those who would object to such conversation are in the minority, and prefer to let things hang as they

grew. Now, only one thing can ever alter this, and that is a good and perfect library in every ship, to enable officers, who spend most of their time out of society, to keep up with the times if possible. But I fear I am drifting imperceptibly into the subject of navy-reform, which I prefer leaving to older and wiser heads.

CHAPTER XIII.

ODDS AND ENDS.

THERE is one grievance which the medical officers, in common with their combatant brethren, have to complain of,—I refer to *compulsory shaving*; neither is this by any means so insignificant a matter as it may seem. It may appear a ridiculous statement, but it is nevertheless a true one, that this regulation has caused many a young surgeon to prefer the army to the navy. "Mere dandies," the reader may say, "whom this grievance would affect;" but there is many a good man a dandy, and no one could surely respect a man who was careless of his personal appearance, or who would willingly, and without a sigh, disfigure his face by depriving it of what nature considers both ornate and useful—ornate, as the ladies and the looking-glass can prove; and useful, as the blistered chin and upper lip of the shaven sailor, in hot climates, points out. From the earliest ages the moustache has been worn,—even the Arabs, who shave the head, leave untouched the upper lip. What would the pictures of some of the great masters be without it? Didn't the Roman youths dedicate the first few downy hairs of the coming moustache to the gods? Does not the moustache give a manly appearance to the smallest and most effeminate? Does it not even beget a certain amount of respect for the

wearer? What sort of guys would the razor make of Count Bismark, Dickens, the Sultan of Turkey, or Anthony Trollope? Were the Emperor Napoleon deprived of his well-waxed moustache, it might lose him the throne of France. Were Garibaldi to call on his barber, he might thereafter call in vain for volunteers, and English ladies would send him no more splints nor sticking-plaster. Shave Tennyson, and you may put him in petticoats as soon as you please.

As to the moustache movement in the navy, it is a subject of talk—admitting of no discussion—in every mess in the service, and thousands are the advocates in favour of its adoption. Indeed, the arguments in favour of it are so numerous, that it is a difficult matter to choose the best, while the reasons against it are few, foolish, and despotic. At the time when the Lords of the Admiralty gave orders that the navy should keep its upper lip, and three fingers' breadth of its royal chin, smooth and copper-kettlish, it was neither fashionable nor respectable to wear the moustache in good society. Those were the days of cabbage-leaf cheeks, powdered wigs, and long queues; but those times are past and gone from every corner of England's possessions save the navy. Barberism has been hunted from polite circles, but has taken refuge under the trident of old Neptune; and, in these days of comparative peace, more blood in the Royal Navy is drawn by the razor than by the cutlass.

In our little gunboat on the coast of Africa, we, both officers and men, used, under the rose, to cultivate moustache and whiskers, until we fell in with

the ship of the commodore of the station. Then, when the commander gave the order, "All hands to shave," never was such a hurlyburly seen, such racing hither and thither (for not a moment was to be lost), such sharpening of scissors and furbishing up of rusty razors. On one occasion I remember sending our steward, who was lathering his face with a blacking-brush, and trying to scrape with a carving-knife, to borrow the commander's razor; in the mean time the commander had despatched his soapy-faced servant to beg the loan of mine. Both stewards met with a clash, nearly running each other through the body with their shaving gear. I lent the commander a Syme's bistoury, with which he managed to pluck most of the hairs out by the root, as if he meant to transplant them again, while I myself shaved with an amputating knife. The men forward stuck by the scissors; and when the commander, with bloody chin and watery eyes, asked why they did not shave,—"Why, sir," replied the bo'swain's mate, "the cockroaches have been and gone and eaten all our razors, they has, sir."

Then, had you seen us reappear on deck after the terrible operation, with our white shaven lips and shivering chins, and a foolish grin on every face, you would, but for our uniform, have taken us for tailors on strike, so unlike were we to the brave-looking, manly dare-devils that trod the deck only an hour before.

And if army officers and men have been graciously permitted to wear the moustache since the Crimean war, why are not we? But perhaps the navy took no part in that gallant struggle. But if we *must*

continue to do penance by shaving, why should it not be the crown of the head, or any other place, rather than the upper lip, which every one can see?

One item of duty there is, which occasionally devolves on the medical officer, and for the most part goes greatly against the feelings of the *young* surgeon; I refer to his compulsory attendance at floggings. It is only fair to state that the majority of captains and commanders use the cat as seldom as possible, and that, too, only sparingly. In some ships, however, flogging is nearly as frequent as prayers of a morning. Again, it is more common on foreign stations than at home, and boys of the first or second class, marines, and ordinary seamen, are for the most part the victims.

I do not believe I shall ever forget the first exhibition of this sort I attended on board my own ship; not that the spectacle was in any way more revolting than scores I have since witnessed, but because the sight was new to me.

I remember it wanted fully twenty minutes of seven in the morning, when my servant aroused me.

"Why so early to-day?" I inquired as I turned out.

"A flaying match, you know, sir," said Jones.

My heart gave an anxious "thud" against my ribs, as if I myself were to form the "ram for the sacrifice." I hurried through with my bath, and, dressing myself as if for a holiday, in cocked hat, sword, and undress coat, I went on deck. We were at anchor in Simon's Bay. All the minutiæ of the scene I remember as though it were but yesterday. The morning was cool and clear, the hills clad in

lilac and green, seabirds floating high in air, and the waters of the bay reflecting the blue of the sky and the lofty mountain-sides, forming a picture almost dreamlike in its quietness and serenity. The men were standing about in groups, dressed in their whitest of pantaloons, bluest of smocks, and neatest of black silk neckerchiefs. By-and-bye the culprit was led aft by a file of marines, and I went below with him to make the preliminary examination, in order to report whether or not he might be fit for the punishment.

He was as good a specimen of the British marine as one could wish to look upon, hardy, bold, and wiry. His crime had been smuggling spirits on board.

"Needn't examine me, Doctor," said he; "I ain't afeard of their four dozen; they can't hurt me, sir, —leastways my back you know—my breast though; hum-m!" and he shook his head, rather sadly I thought, as he bent down his eyes.

"What," said I, "have you anything the matter with your chest?"

"Nay, Doctor, nay; its my feelins they'll hurt. I've a little girl at home that loves me, and—bless you, sir, I won't look her in the face again no-how."

I felt his pulse. No lack of strength there, no nervousness; the artery had the firm beat of health, the tendons felt like rods of iron beneath the finger, and his biceps stood out hard and round as the mainstay of an old seventy-four.

I pitied the brave fellow, and—very wrong of me it was, but I could not help it—filled out and offered him a large glass of rum.

"Ah! sir," he said, with a wistful eye on the ruby liquid, "don't tempt me, sir. I can bear the bit o' flaying athout that: I wouldn't have my messmates smell Dutch courage on my breath, sir; thankee all the same, Doctor." And he walked on deck and surrendered himself.

All hands had already assembled, the men and boys on one side, and the officers, in cocked hats and swords, on the other. A grating had been lashed against the bulwark, and another placed on deck beside it. The culprit's shoulders and back were bared, and a strong belt fastened around the lower part of the loins for protection; he was then firmly tied by the hands to the upper, and by the feet to the lower grating; a little basin of cold water was placed at his feet; and all was now prepared. The sentence was read, and orders given to proceed with the punishment. The cat is a terrible instrument of torture; I would not use it on a bull unless in self-defence: the shaft is about a foot and a half long, and covered with green or red baize according to taste; the thongs are nine, about twenty-eight inches in length, of the thickness of a goose-quill, and with two knots tied on each. Men describe the first blow as like a shower of molten lead.

Combing out the thongs with his five fingers before each blow, firmly and determinedly was the first dozen delivered by the bo'swain's mate, and as unflinchingly received.

Then, "One dozen, sir, please," he reported, saluting the commander.

"Continue the punishment," was the calm reply.

A new man and a new cat. Another dozen re-

ported; again, the same reply. Three dozen. The flesh, like burning steel, had changed from red to purple, and blue, and white; and between the third and fourth dozen, the suffering wretch, pale enough now, and in all probability sick, begged a comrade to give him a mouthful of water. There was a tear in the eye of the hardy sailor who obeyed him, whispering as he did so—

"Keep up, Bill; it'll soon be over now."

"Five, six," the corporal slowly counted—"seven, eight." It is the last dozen, and how acute must be the torture! "Nine, ten." The blood comes now fast enough, and—yes, gentle reader, I *will* spare your feelings. The man was cast loose at last and put on the sick-list; he had borne his punishment without a groan and without moving a muscle. A large pet monkey sat crunching nuts in the rigging, and grinning all the time; I have no doubt *he* enjoyed the spectacle immensely, *for he was only an ape.*

Tommie G—— was a pretty, fair-skinned, blue-eyed boy, some sixteen summers old. He was one of a class only too common in the service; having become enamoured of the sea, he had run away from his home and joined the service; and, poor little man! he found out, when too late, that the stern realities of a sailor's life did not at all accord with the golden notions he had formed of it. Being fond of stowing himself away in corners with a book, instead of keeping his watch, Tommie very often got into disgrace, spent much of his time at the mast-head, and had many unpleasant palmar rencounters with the corporal's cane. One day, his watch being over, he had retired to a corner with his little "ditty-box."

Nobody ever knew one-half of the beloved nicknacks and valued nothings he kept in that wee box: it was in fact his private cabin, his sanctum sanctorum, to which he could retreat when anything vexed him; a sort of portable home, in which he could forget the toils of his weary watch, the giddy mast-head, or even the corporal's cane. He had extracted, and was dreamily gazing on, the portrait of a very young lady, when the corporal came up and rudely seized it, and made a very rough and inelegant remark concerning the fair virgin.

"That is my sister," cried Tommie, with tears in his eyes.

"Your sister!" sneered the corporal; "she is a —" and he added a word that cannot be named. There was the spirit of young England, however, in Tommie's breast; and the word had scarcely crossed the corporal's lips, when those lips, and his nose too, were dyed in the blood the boy's fist had drawn. For that blow poor Tommie was condemned to receive four dozen lashes. And the execution of the sentence was carried out with all the pomp and show usual on such occasions. Arrayed in cocked-hats, epaulets, and swords, we all assembled to witness that helpless child in his agony. One would have thought that even the rough bo'swain's mate would have hesitated to disfigure skin so white and tender, or that the frightened and imploring glance Tommie cast upward on the first descending lash would have unnerved his arm. Did it? No, reader; pity there doubtless was among us, but mercy—none. Oh! we were a brave band. And the poor boy writhed in his agony; his screams and cries were

heartrending; and, God forgive us! we knew not till then he was an orphan, till we heard him beseech his mother in heaven to look down on her son, to pity and support him. Ah! well, perhaps she did, for scarcely had the third dozen commenced when Tommie's cries were hushed, his head drooped on his shoulder like a little dead bird's, and for a while his sufferings were at an end. I gladly took the opportunity to report further proceedings as dangerous, and he was carried away to his hammock.

I will not shock the nerves and feelings of the reader by any further relation of the horrors of flogging, merely adding, that I consider corporal punishment, as applied to men, *cowardly*, *cruel*, and debasing to *human nature;* and as applied to boys, *brutal*, and sometimes even *fiendish*. There is only one question I wish to ask of every true-hearted English lady who may read these lines—Be you sister, wife, or mother, could you in your heart have respected the commander who, with folded arms and grim smile, replied to poor Tommie's frantic appeals for mercy, "Continue the punishment"?

The pay of medical officers is by no means high enough to entice young doctors, who can do anything like well on shore, to enter the service. Ten shillings a day, with an increase of half-a-crown after five years' service on full-pay, is not a great temptation certainly. To be sure the expenses of living are small, two shillings a day being all that is paid for messing; this of course not including the wine-bill, the size of which will depend

on the "drouthiness" of the officer who contracts it. Government provides all mess-traps, except silver forks and spoons. Then there is uniform to keep up, and shore-going clothes to be paid for, and occasionally a shilling or two for boat-hire. However, with a moderate wine-bill, the assistant-surgeon may save about four shillings or more a-day.

Promotion to the rank of surgeon, unless to some fortunate individuals, comes but slowly; it may, however, be reckoned on after from eight to ten years. A few gentlemen out of each "batch" who "pass" into the service, and who have distinguished themselves at the examination, are promoted sooner.

It seems to be the policy of the present Director-General to deal as fairly as possible with every assistant-surgeon, after a certain routine. On first joining he is sent for a short spell—too short, indeed—to a hospital. He is then appointed to a sea-going ship for a commission—say three years—on a foreign station. On coming home he is granted a few months' leave on full pay, and is afterwards appointed to a harbour-ship for about six months. By the end of this time he is supposed to have fairly recruited from the fatigues of his commission abroad; he is accordingly sent out again to some other foreign station for three or four years. On again returning to his native land, he might be justified in hoping for a pet appointment, say to a hospital, the marines, a harbour-ship, or, failing these, to the Channel fleet. On being promoted he is sent off abroad again, and so on; and thus he spends his useful life, and serves his Queen and country, and earns his pay, and generally spends that likewise.

Pensions are granted to the widows of assistant-surgeons—from forty to seventy pounds a year, according to circumstances; and if he leaves no widow, a dependent mother, or even sister, may obtain the pension. But I fear I must give, to assistant-surgeons about to marry, Punch's advice, and say most emphatically, "Don't;" unless, indeed, the dear creature has money, and is able to purchase a practice for her darling doctor.

With a little increase of pay ungrudgingly given, shorter commissions abroad, and less of the "bite and buffet" about favours granted, the navy would be a very good service for the medical officer.

However, as it is, to a man who has neither wife nor riches, it is, I dare say, as good a way of spending life as any other; and I do think that there are but few old surgeons who, on looking back to the life they have led in the navy, would not say of that service,—"With all thy faults I love thee still."

THE END.

LONDON:

PRINTED BY W. CLOWES AND SONS, DUKE STREET, STAMFORD STREET,
AND CHARING CROSS.

Publisher by Appointment to the Royal College of Surgeons.

Publisher by Appointment to the Ray Society.

INTERESTING AND USEFUL WORKS

PUBLISHED BY

ROBERT HARDWICKE,

192 PICCADILLY, W.

☞ FOR FACILITY OF REFERENCE THE WORKS ARE ARRANGED UNDER SUBJECTS, WITH INDEX TO AUTHORS.

CONTENTS:

	PAGE
Sowerby's English Botany	3—5
Natural History, Popular Science, and General Science	6—9
Publications of the Ray Society	10—11
Publications of the Royal College of Surgeons	11
Genealogical, Heraldic, and County History	18—19
Miscellaneous Literature	20—21
Educational Works	16—17
Hardwicke's Elementary Books	16
Mackenzie's Educational Books	17
Domestic, Hygienic, &c.	22—23
Medical and Surgical	24—28
Popular Science Review Contributors and Articles, Vol. 1—6	29—31

INDEX TO AUTHORS:

Adams, L. A., F.S.A.	29
Alder and Hancock	10
Allman, Professor, F.R.S.	10
Annandale, Thomas, F.R.C.S.	24
Ansted, Professor, F.R.S.	12
Anstie, Dr.	29
Baird, Dr., F.L.S.	10, 29
Baker, J. G., F.L.S.	6
Ball, Edward	17
Barker, Dr. T. H., F.R.S. Edin.	24
Barker, Dr. S.	23
Barrett, W. F.	29
Barwell, R., F.R.C.S.	24
Bastian, Dr., F.R.S.	29
Bate, Spence, F.R.S.	29
Bazire, Dr. P. V.	28
Beale, Dr. Lionel, F.R.S.	29
Beard, Dr. G. M.	28
Beigel, Dr. H., L.R.C.P.	24
Blackwall, J., F.L.S.	10, 29
Bond, Dr. F., F.C.S.	29
Boner, Charles	9
Bowerbank, Dr., F.R.S., F.L.S.	10
Bowring, Sir John, LL.D.	19
Brande, Professor, D.C.L., F.R.S.L.	24
Breen, James	29
Briot, M. C.	17
Brown, I. B., F.R.C.S.	24
Brown, I. B., jun.	28
Browne, Mrs.	17
Brown, Robert, D.C.L., F.R.S.	10
Buckman, Professor, F.L.S., F.G.S.	13, 29
Burmeister, Professor	10
Busk, G., F.R.S.	10
Butcher, Dr., R.G.H.	24
Canton, E., F.R.C.S.	25
Carpenter, Dr., F.R.S.	10
Carruthers, W., F.L.S.	29
Carter, R. B., F.R.C.S.	25
Chamisso, A. von	19
Chambers, G. F., F.R.A.S.	29
Church, H. J., F.C.S.	25
Church, Professor	29
Cobbold, Dr. T. S., F.R.S.	11, 29
Cundy, H. B.	25
Cooke, M. C.	7, 8, 29
Cooley, A. J.	21, 25
Coote, Holmes, F.R.C.S.	25

	PAGE
Coultas, H.	29
Coulson, W., F.R.C.S.	25
Crookes, William, F.R.S.	29
Cross, Dr.	22
Currey, F., M.A., F.R.S.	10
Darby, Rev. W. A., F.R.A.S.	14
Darwin, C., F.R.S.	10
Davies, Thos.	8
Davis, Dr. J. H., F.R.C.P.	25
Dawkins, W. B., F.R.S.	29
Debus, H., F.R.S.	29
De Quatrefages, A.	13, 29
Dick, Dr. H.	26
Divers, Dr.	29
Dougall, J. D.	19
Douglas, J. W.	10
Dowie, James	22
Drysdale, Dr. C.	26
Duthie, W.	19
Earl, Dr. L.	25
Edwards, F., jun.	21
Ellis, Robert, M.R.C.S.	26
Falconer, Hugh	12
Fleischmann, A., M.R.C.S.	22
Flint, Dr. A.	26
Flower, W. H., F.R.S.	11
Forbes, D., F.R.S.	30
Forbes, Professor, F.R.S.	10
Foster, Professor	30
Fox, Dr. Tilbury	26
Fraser, Dr. P.	26
Frazer, Dr. W.	26
Fripp, Dr. H., F.R.S.	30
Fry, Herbert	17
Gamgee, J.	15
Gaisher, James, F.R.S.	30
Goodfellow, Dr. S. J., F.R.C.P.	24
Gore, G., F.R.S.	30
Gosse, P. H., F.R.S.	30
Gray, Dr. J. E., F.R.S.	30
Grove, Dr. John, M.R.C.S.	24
Gulliver, Professor, F.R.S.	30
Günther, Dr., F.R.S.	10
Habershon, Dr. S. O., F.R.C.P.	26
Hanks, H., L.R.C.P. Edin.	22
Hartshorne, E. S.	18
Henslow, Rev. G., F.L.S.	30
Hickman, W., M.B., F.R.C.S.	26
Hicks, Dr. B., F.R.S.	30
Hofmeister, Dr., F.R.S.	10
Hogg, J., F.L.S.	30
Hooker, Dr., F.R.S.	30
Hooker, Sir W. J., K.H.	6
Houghton, Rev. W., F.L.S.	30
Howden, P., V.S.	15
Hull, E., F.G.S.	30
Hulme, R. T., M.R.C.S., F.L.S.	26
Humboldt, A. von	12
Hunt, Robert, F.R.S.	30
Huxley, Professor, F.R.S.	10, 30
Jesse, G. R.	21
Jones, Rev. H.	19
Jones, Professor T. R., F.G.S.	30
Jones, Dr. W. H., M.R.C.S.	27
Johnson, C. P.	6
Johnson, Dr. Geo., M.R.C.P.	27
Kemp, Dr. G.	14
Kempton, H. T., F.L.S.	27
Kennard, Rev. R. B., M.A.	19
Langley, J. Baxter, M.R.C.S., F.L.S.	27
Lankester, Dr., F.R.S.	7, 9, 23, 30
Lankester, E. Ray	30
Lankester, Mrs.	3, 6, 7, 30
Laurence, J. Z., M.B., F.R.C.S.	27
, Dr.	13, 23, 30
y, Miss	22
Leighton, Rev. W. A., M.A.	10
Lewes, G. H.	31
Liebig, Baron	31
Lord, J. K.	9
Lukis, Captain J. H.	21
Mackenzie, Dr. M., M.R.C.P.	27
Mackie, S. J., F.G.S.	12, 31
Marsh, Dr. J. C. L., M.R.C.P.	21
Marshall, G. W., LL.M.	19
Masters, Dr. M., F.L.S.	31
Milton, J. L.	13, 27
Monckhoven, D. Van, Ph.D.	14
Morgan, Dr. C. E.	27
Morris, Dr. E., F.R.C.S.	27, 31
Morris, Professor, F.R.S.	11
Morton, F., C.E.	16
Murchison, Dr. C., F.R.S.	12
Newton, J., F.R.H.S.	13
Norton, A. T., F.R.C.S.	27
Nunn, T. W., F.R.C.S.	27
Owen, Professor, F.R.S.	11
Parker, W. K., F.R.S.	11
Patterson, Robt., F.R.S.	31
Pennell, Cholmondeley-	19
Planché, J. R., Rouge-Croix	18
Proctor, R. A., F.R.A.S.	14, 31
Quekett, Professor	11
Ransonnett, Baron	22
Reddie, Jas.	12
Richardson, Dr. B. W., F.R.S.	31
Russell, C.	14
Samuelson, Jas.	31
Sanderson, Dr. J. B., F.R.S.	28
Schaible, Dr. C. H., Ph.D.	23
Schleiden, Professor	7
Schwarzenberg, F. A.	12
Sclater, Dr., F.R.S.	11
Scott, John	10
Seemann, Dr. B., Ph.D., F.L.S., F.R.G.S.	8, 31
Sheen, J. R.	21
Sheppard, Dr. E.	22
Siebeck, R.	13
Sims, Dr. J. Marion	28
Smith, John, A.L.S.	6
Smith, W. G., F.A.S.L.	7
Solly, S., F.R.S.	28
Somerville, A.	15
Sorby, H. C., F.R.S.	31
Sowerby, J. E.	3—6
Spear, J.	17
Spicer, Rev. W. W., M.A.	8
Steenstrup, Professor	10
Stellwag, Dr. Carl von Carion	25
Strickland, H. E., F.R.S.	11
Syme, J. T. B., F.L.S.	3
Symonds, Rev. W. S.	12
Tate, A. N., F.C.S.	14
Tate, R., F.R.G.S.	7
Taylor, Dr. A. S., F.R.S., F.R.C.P.	24
Teevan, W. F., F.R.C.S.	28
Timmins, S.	15
Tobold, Dr. A.	28
Trousseau, Professor A.	28
Unwin, W. C.	31
Vincent, John	13
Voelcker, Professor, F.C.S.	31
Waite, S. C.	15
Walford, Rev. E.	18
Walker, C. V., F.R.S.	31
Webb, Dr. F. C., F.L.S.	27
Westfield, T. C., F.S.A.	13
Williamson, Professor, F.R.S.	10, 31
Winslow, Dr. Forbes, D.C.L. Oxon	28
Wood, Jno., F.R.C.S.	28
Wynter, Dr. A.	20
Zander, Dr. A.	25

SOWERBY'S ENGLISH BOTANY:

Containing a Description and *Life-size* Drawing of every British Plant. Edited and brought up to the present standard of scientific knowledge by T. BOSWELL SYME, F.L.S., &c. With Popular Descriptions of the Uses, History, and Traditions of each Plant, by Mrs. LANKESTER, Author of 'Wild Flowers worth Notice,' 'The British Ferns,' &c. The Figures by J. E. SOWERBY, JAMES SOWERBY, F.L.S., J. DE C. SOWERBY, F.L.S., and J. W. SALTER, A.L.S. In Parts, at 5s. each.

Sowerby's English Botany:—

Vol. 1 contains a description and life-size hand-coloured figure of each Species of the following Plants—

Aconites	Columbine	Ladies' smocks	Poppies
Alyssums	Coralwort	Larkspurs	Radishes
Anemones	Corydalises	Lilies	Rape
Awlwort	Cresses	Madwort	Rockets
Banebury	Crowfoots	Marigold	Rues
Barberry	Cuckoo flower	Mayflower	Scurvy grasses
Barrenwort	Earthsmoke	Monkshood	Spearworts
Bearsfoot	Figwort	Mousetails	Stocks
Brandybottle	Flixweed	Mustards	Toothwort
Buttercup	Fumitories	Nailwort	Traveller's joy
Cabbages	Gilliflowers	Nasturtiums	Turnips
Caltrops	Headwark	Navews	Wallflowers
Candytuft	Hellebores	Old man's beard	Whitlow grasses
Celandines	Horseradish	Pasque flower	Woad
Charlocks	Hutchinsia	Peony	Wolfsbane
Colesseed	Jack-by-the-hedge	Pepperworts	
Colewort	Kingcup	Pheasant's eyes	

All the Plants ranked under the orders Ranunculaceæ, Berberidaceæ, Nymphæaceæ, Papaveraceæ, and Cruciferæ. 7 Parts, at 5s. each; complete in cloth, 38s.; half morocco, 42s.; whole morocco, 48s. 6d.

Sowerby's English Botany:—Vol. 2 contains the

Aaron's beard	Cyphel	Pansies	Spurreys
Alder	Dyer's weed	Pearlworts	Stitchworts
All-seed	Flaxes	Pinks	Storks' bills
Balsams	Fuller's herb	Purslane	Sun dews
Bladder-nut	Heartsease	Ragged Robin	Sun rose
Bruisewort	Herb Roberts	Red rot	Sycamore
Buckthorns	Holly	Rocket	Tamarisk
Campions	Limes	Rock roses	Tutsan
Carnation	Limewort	Rose of heaven	Violets
Catchflys	Lychnis	St. John's worts	Water blinks
Chickweeds	Mallows	Sandworts	Waterworts
Claytonia	Maples	Sea heath	Wild Williams
Corn cockle	Mignonettes	Soapwort	Yarr
Cranes' bills	Milkworts	Sorrels	
Cuckoo flower	Mœnchia	Spindle tree	

All the Plants ranked under the orders Resedaceæ, Cistaceæ, Violaceæ, Droseraceæ, Polygalaceæ, Frankeniaceæ, Caryophyllaceæ, Portulacaceæ, Tamaricaceæ, Elatinaceæ, Hypericaceæ, Malvaceæ, Tiliaceæ, Linaceæ, Geraniaceæ, Ilicineæ, Celastraceæ, Rhamnaceæ, Sapindaceæ. 7 Parts, at 5s. each; complete in cloth, 38s.; half morocco, 42s.; whole morocco, 48s. 6d.

Sowerby's English Botany:—Vol. 3 contains the

Agrimonies	Dewberry	Meadow-sweet	Service-trees
Apples	Dropwort	Medicks	Shamrock
Avens	Eglantine	Medlar	Sibbaldia
Beams	Fenugreek	Melilots	Silver-weed
Birdsfoots	Furzes	Mountain-ashes	Spiræa
Blackberry	Gean	Nonsuch	Strawberries
Blackthorn	Gorse	Oxytropis	Sweetbriars
Brambles	Green-weeds	Parsley piert	Tares
Briars	Hawthorns	Pear	Tongue under tongue
Broom	Honeystalks	Peas	Tormentils
Bullace	Ladies-finger	Plum	Trefoils
Burnets	Lady's mantles	Queen of the meadow	Vetches
Cherries	Lamb-toe	Raspberries	Vetchlings
Cinquefoils	Liquorice	Rest-harrows	Waxen-wood
Cloudberry	Lucernes	Roebuck-berry	Whins
Clovers	Marl-grass	Roses	Whitebeams
Cotoneaster	May	Saintfoin	Whitethorns

All the Plants ranked under the orders Leguminiferæ and Rosaceæ. 8 Parts at 5s. each; complete in cloth, 43s.; half morocco, 47s.; whole morocco, 53s. 6d.

London: ROBERT HARDWICKE, 192 Piccadilly, W.

Sowerby's English Botany:—Vol. 4 contains the

Alexanders	Earth-nuts	Isnardia	Pennywort
Angelicas	Elders	Ivy	Purslane
Anise	Eryngo	Lamb's-lettuces	Rose-root
Astrantia	Evening primroses	Linnæa	Samphires
Bald-money	Fennels	Livelong	Sanicle
Bay, rose	Golden moss	London Pride	Saxifrages
Bedstraws	Gooseberry	Loose strife	Scabiouses
Bladder-seed	Goosegrass	Lovage	Squinancywort
Bryony	Goutweed	Madders	Stonecrops
Caraways	Grass of Parnassus	Mare's tail	Stoneworts
Carrots	Grass-poly	Masterwort	Sulphur-wort
Celery	Guelder rose	Meal tree	Teasels
Cheese-rennet	Hare's-ears	Milfoils	Thorough-wax
Chervils	Hartwort	Mistletoe	Tilleas
Cicely	Hemlocks	Moschatel	Valerians
Coriander	Herb, Bennet	Mugwort	Venus' comb
Cornel	Herb, Gerard	Navelwort	Wayfaring tree
Currants	Hog's fennels	Nightshades	Willow herbs
Danewort	Holley, sea	Orpines	Woodbines
Dogwood	Honeysuckle	Parsleys	Woodruffs
Dropworts	House-leek	Parsnips	

All the Plants ranked under the orders Lythraceæ, Onagraceæ, Cucurbitaceæ, Grossulariaceæ, Crassulaceæ, Saxifragaceæ, Umbelliferæ, Araliaceæ, Cornaceæ, Loranthaceæ, Caprifoliaceæ, Rubiaceæ, Valerianaceæ, Dipsaceæ. 9 Parts at 5s. each; complete in cloth, 48s.; half morocco, 52s.; whole morocco, 58s. 6d.

Sowerby's English Botany:—Vol. 5 contains the

Aster	Elecampane	Heliotrope	Salsify
Blue-bottle	Everlastings	Hemp-agrimony	Samphire
Burdocks	Feverfew	Inula	Saw-worts
Bur-Marygolds	Fleabanes	Knapweeds	Sneeze-worts
Butter-bur	Fleaworts	Lettuces	Southernwood
Cat's-ears	Galinsoga	Leopards'-banes	Sow-thistle
Chamomiles	Goats-beards	Marigold	Spikenard
Coltsfoots	Golden-rods	Mayweeds	Star-thistles
Corn-flower	Goldylocks	Mugwort	Succorys
Cotton-weed	Groundsels	Nipple-wort	Tansy
Cudweeds	Hawk-bits	Ox-eye	Thistles
Daisy	Hawks'-beards	Ox-tongue	Wormwoods
Dandelions	Hawkweeds	Ragworts	Yarrows

All the Plants ranked under the order Compositæ. 8 Parts at 5s. each; complete in cloth, 42s.; half morocco, 47s.; whole morocco, 53s. 6d.

Sowerby's English Botany:—Vol. 6 contains the

Andromeda	Bunny	Henbane	Rosemary
Arbutus	Butter-and-eggs	Henne-belle	Sheep's-bit
Ashes	Canterbury bell	Higtaper	Snapdragons
Azalea	Centaurys	Jacob's ladder	Speedwells
Bartsias	Cicendias	King's-taper	Strangle-weed
Bearberrys	Convolvulus	Ling	Strawberry-tree
Belladonna	Cow wheats	Lobelias	Tea-plant
Bell-flowers	Cranberrys	Louseworts	Thorn-apple
Betonys	Devals	Menzieslas	Throat-wort
Bilberrys	Dodders	Moneywort	Toadflaxes
Bindweeds	Euphraisie	Monkey-flower	Toothwort
Bird's-nest	Eyebrights	Mother-of-thousands	Torch-blade
Bitter-sweet	Felwort	Mudwort	Valerian
Bleaberry	Figworts	Mulleins	Venus's looking-glass
Bog bean	Fluellins	Nightshades	Vervian
Broom-rapes	Foxglove	Pennyweed	Violet
Brooklime	Gentians	Periwinkles	Whortleberry
Brown-rapes	Hag-taper	Prim-print	Witches' thimbles
Brownworts	Hare-bell	Privets	Winter-greens
Buck beans	Heaths	Rabbit's-mouth	Yellow-rattles
Bull-dogs	Heather	Rampions	
Bullock's-wort			

All the Plants ranked under the orders Campanulaceæ, Ericaceæ, Jasminaceæ, Apocynaceæ, Gentianaceæ, Polemoniaceæ, Convolvulaceæ, Solanaceæ, Scrophulariaceæ, Orobanchaceæ, Verbenaceæ. 7 Parts at 5s. each; complete in cloth, 33s.; half morocco, 42s.; whole morocco, 48s. 6d.

'on: ROBERT HARDWICKE, 192 Piccadilly, W.

Sowerby's English Botany :— Vol. 7 contains the

Alkanets	Comfreys	Knawels	Pimpernels
Amaranth	Cowslips	Lavenders	Plantains
Archangel	Creeping Jenny	Loosestrifes	Primroses
Balms	Cyclamen	Lungworts	Rib-grass
Basil	Dead-nettles	Madwort	Rupturewort
Betony	Forget-me-nots	Marjoram	Saltwort
Bladderworts	Germanders	Mints	Skull-caps
Borage	Gipsey wort	Moneywort	Sea lavenders
Brook-weed	Gromwells	Motherwort	Self-heal
Bugles	Ground Ivy	Nettles	Strapwort
Bugloss	——— Pine	Oxlips	Thrifts
Butterworts	Hemp-nettles	Oyster-plant	Thymes
Calamints	Horehounds	Penny-royal	Water violet
Chickweed	Hounds' Tongues	Peppermint	Woundwort
Clarys	Illecebrum		

All the Plants ranked under the orders Labiatæ, Boraginaceæ, Lentibulariaceæ, Primulaceæ, Plumbaginaceæ, Plantaginaceæ, Paronychiaceæ, Amarantaceæ. 7 Parts at 5s. each; complete, in cloth, 33s.; half morocco, 42s.; whole morocco, 48s. 6d.

Sowerby's English Botany :— Vol. 8 contains the

Alder	Crowberry	Mercury	Purslane
Allgood	Docks	Mezereon	Rhubarb
Asarabaca	Dog's mercurys	Myrtle	Sallows
Aspen	Elms	Nettles	Saltworts
Beech	Fir	Oaks	Samphires
Beet	Goosefoots	Oraches	Seablites
Birches	Hazel	Osiers	Sea beet
Birthworts	Hemp	Pellitory of the wall	Sorrels
Bistorts	Hop	Pepper	Spurges
Box	Hornbeam	Persicarias	Starworts
Buckthorn	Hornworts	Pine	Willows
Buckwheats	Junipers	Poplars	Yew
Chesnut	Knotgrasses		

All the Plants ranked under the orders Chenopodiaceæ, Polygonaceæ, Eleganaceæ, Thymelaceæ, Santalaceæ, Aristolochiaceæ, Empetraceæ, Euphorbiaceæ, Callitrichaceæ, Ceratophyllaceæ, Urticaceæ, Amentiferæ, Coniferæ. 10 Parts at 5s. each: complete in cloth, 53s.; half morocco, 57s.; whole morocco, 63s. 6d.

'Under the editorship of T. Boswell Syme, F.L.S., assisted by Mrs. Lankester, "Sowerby's English Botany," when finished, will be exhaustive of the subject, and worthy of the branch of science it illustrates .....In turning over the charmingly executed hand-coloured plates of British plants which encumber these volumes with riches, the reader cannot help being struck with the beauty of many of the humblest flowering weeds we tread on with careless step. We cannot dwell upon many of the individuals grouped in the splendid bouquet of flowers presented in these pages, and it will be sufficient to state that the work is pledged to contain a figure of every wild flower indigenous to these isles.'—*The Times*, Nov. 3, 1865.

'Will be the most complete Flora of Great Britain ever brought out. This great work will find a place wherever botanical science is cultivated, and the study of our native plants, with all their fascinating associations, held dear.'—*Athenæum*.

'Nothing can exceed the beauty and accuracy of the coloured figures. They are drawn life-size—an advantage which every young amateur will recognise who has vainly puzzled over drawings in which a celandine is as big as a poppy—they are enriched with delicate delineations of print, petal, anther, and any organ which happens to be remarkable in its form—and not a few plates are altogether new.....A clear, bold, distinctive type enables the reader to take in at a glance the arrangement and divisions of every page. And Mrs. Lankester has added to the technical description by the editor an extremely interesting popular sketch, which follows in smaller type. The English, French, and German popular names are given, and, wherever that delicate and difficult step is at all practicable, their derivation also. Medical properties, superstitions, and fancies, and poetic tributes and illusions follow. In short, there is nothing more left to be desired.'
Guardian.

'Without question, this is the standard work on Botany, and indispensable to every botanist.....The plates are most accurate and beautiful, and the entire work cannot be too strongly recommended to all who are interested in botany.'—*Illustrated News.*

***** Subscribers to this great National Undertaking may commence at any time without buying all the back numbers at once. Prospectuses and Specimens gratis.**

Sir Wm. Hooker's Synopsis of all known Ferns.

Synopsis Filicum; including Osmundaceæ, Schizæaceæ, Marattiaceæ, and Ophioglossaceæ, accompanied by Figures representing the essential characteristics of each Genus. By the late Sir W. J. Hooker, K.H., and John Gilbert Baker, F.L.S., Assistant Curator of the Kew Gardens. Price £1 2s. 6d. plain, £1 8s. coloured by hand.

This is the cheapest and most complete book which describes all the Ferns throughout the world. So full and clear are its details that anybody who will take the trouble to master a few botanical terms can with certainty name any fern he may meet with in any part of the world, whether growing wild or under cultivation in garden or hothouse.

'Sir W. Hooker began collecting a Fern Herbarium in 1811. For this study this enthusiastic and illustrious botanist had all his life extraordinary advantages. The positions he occupied—first as Professor of Botany at Glasgow, and then as Director of the Kew Gardens—were made the most of, not merely by amiability of character which made his pupils and friends willing assistants, but at Kew he possessed the finest herbarium of ferns, and, thanks to Mr. John Smith, the best collection of ferns in cultivation in the world. The names of travellers and botanists to whom he acknowledges obligations fill a page and a half of his Preface. When Sir W. Hooker died, his son, Dr. Hooker, requested Mr. J. G. Baker to carry it out, possessing as he did full access to the specimens, and being supplied with Sir William's notes and annotations. The result is the publication of such a work as the author designed—a *vade mecum* for the students, cultivators, and collectors of ferns.'—*Athenæum.*

Ferns, British and Foreign.

Their History, Organography, Classification, Nomenclature, and Culture, with Directions showing which are the best adapted for the Hothouse, Greenhouse, Open-Air Fernery, or Wardian Case. With an Index of Genera, Species, and Synonyms. By John Smith, A.L.S., late Curator of the Royal Gardens, Kew. With 250 Woodcuts. Crown 8vo. cloth, fully illustrated, price 6s.

Mr. Smith is acknowledged to be one of the first authorities on Ferns, having been engaged nearly half a century in arranging them at Kew.

The Fern Collector's Album.

A Descriptive Folio for the reception of Natural Specimens; containing on the right-hand page a description of each Fern printed in colours, the opposite page being left blank for the collector to affix the dried specimen; forming, when filled, an elegant and complete collection of this interesting family of plants. Handsomely bound, price One Guinea, size 11½ in. by 8½ in. A Large Edition, size 17½ in. by 11 in., without Descriptive Letterpress, One Guinea.

The British Ferns

(A plain and easy Account of). Together with their Classification, Arrangement of Genera, Structure, and Functions, Directions for Out-door and In-door Cultivation, &c. By Mrs. Lankester. Fully illustrated, price 4s. coloured by hand; 2s. 6d. plain.

'Not only plain and easy, but elegantly illustrated.'—*Athenæum.*

The Useful Plants of Great Britain.

A Treatise on the Principal Native Vegetables capable of Application as Food or Medicine, or in the Arts and Manufactures. By C. P. Johnson. Illustrated by J. E. Sowerby. 300 Illustrations coloured by hand. Beautifully bound, bevelled edges, price 12s.

The Grasses of Great Britain,

Containing life-sized, full-coloured Drawings, with magnified Organs, of 144 British Grasses, and Observations on their Natural History and Uses. Described by Charles Johnson. Illustrated by J. E. Sowerby. Royal 8vo. cloth, price £1 8s.

This is the most comprehensive Work on British Grasses, and is the only book which gives the magnified organ to enable the reader to recognise the various grasses.

The London Catalogue of British Plants,

Published under the direction of the London Botanical Exchange Club, adapted for Marking Desiderata in Exchanges of Specimens; for an Index Catalogue to British Herbaria; for Indicating the Species of Local Districts; and for a Guide to Collectors, by showing the comparative rarity or frequency of the several species. Second Edition, 8vo. sewed, price 6d.

London: ROBERT HARDWICKE, 192 Piccadilly, W.

Wild Flowers worth Notice.

A Selection from the British Flora of some of our Native Plants which are most attractive for their Beauty, Uses, or Associations. By Mrs. LANKESTER. Illustrated by J. E. SOWERBY. Fcp. 8vo. cloth, coloured by hand, price 4s.

'We could while away a long summer day talking of the pleasant things suggested by this little book. Although all intelligent persons cannot become botanists, not to know the wild flowers of our country is to be ignorant both of our country and ourselves. And this little book will, as a pocket companion during holiday rambles—the descriptions and plates being both good—destroy this ignorance in reference to at least a hundred plants. After mastering it, the student will be not a little astounded at his own learning, when he surveys it in the systematic chapter of contents.'—*Athenæum.*

The British Fungi

(A plain and easy Account of). With especial reference to the Esculent and other Economic Species. By M. C. COOKE. New and revised Edition, with Coloured Plates of 40 Species. Fcp. price 6s.

'A very readable volume upon the lowest and least generally understood race of plants. For popular purposes the book could not have been better done.'—*Athenæum.*

Microscopic Fungi.

(Rust, Smut, Mildew, and Mould.) An Introduction to the Study of Microscopic Fungi. By M. C. COOKE, Author of the 'British Fungi.' Fcp. 8vo. nearly 300 coloured Figures, price 6s.

'There is a thoroughness about Mr. Cooke's writings which always makes his communications welcome. He is not content to gather information from cyclopædias, classify and adapt, and then give a new form to the thoughts of others. On the contrary, he strikes out a new course of study, and after a laborious course of analysis, produces an entirely original work, one on which nothing of the kind had been before attempted.'
WESLEYAN TIMES.

Mushrooms and Toadstools:

How to Distinguish easily the Difference between Edible and Poisonous Fungi; with two large sheets, containing figures of 29 Edible and 31 Poisonous Species, drawn the natural size, and coloured from living specimens. By WORTHIN G. SMITH, F.A.S.L., &c. In sheets, with book, price 6s.; on canvass in cloth case, for pocket, 10s. 6d.; on canvass, with rollers and varnished, for hanging up, 10s. 6d.

Index Fungorum Britannicorum.

A complete List of Fungi found in the British Islands to the Present Date. Arranged so as to be applicable either as a check-list or for Herbarium Labels. By M. C. COOKE. Royal 8vo. price 2s. 6d. Also the same Work printed on only one side.

Part I. HYMENOMYCETES, 1s. Part II. GASTROMYCETES, CONIOMYCETES, and HYPHOMYCETES, 1s. Part III. ASCOMYCETES, 1s.

The British Reptiles.

A Plain and Easy Account of the Lizards, Snakes, Newts, Toads, Frogs, and Tortoises indigenous to Great Britain. By M. C. COOKE, Author of 'The British Fungi,' &c. Fcp. 8vo. cloth, fully illustrated, 4s. plain; 6s. coloured.

British Mollusks;

Or, Slugs and Snails, Land and Fresh-water. A Plain and Easy Account of the Land and Fresh-water Mollusks of Great Britain, containing Descriptions, Figures, and a Familiar Account of the Habits of each Species. By RALPH TATE, F.R.G.S. Fcp. 8vo. cloth, fully illustrated, 4s. plain; 6s. coloured.

Schleiden's Principles of Scientific Botany;

Or, Botany as an Inductive Science. Translated by Dr. LANKESTER. Demy 8vo. price 10s. 6d. Hundreds of Woodcuts, and 6 pages of Figures, beautifully engraved on Steel. Demy 8vo. price 10s. 6d.

Every Botanical Library should possess this work, as it contains the principles upon which all structural botany is based.

A Manual of Structural Botany.

By M. C. COOKE, Author of 'Seven Sisters of Sleep,' &c. Illustrated by more than 200 Woodcuts, price 1s.; bound, 1s. 6d.

'Condensed yet clear, comprehensive but brief, it affords to the learner a distinct view.' *Globe.*

'We are confidently able to recommend the little volume to public favour, its very low price (1s.) bringing it within the range of all purchasers.'—*Bra.*

A Manual of Botanic Terms.

By M. C. COOKE. With more than 300 illustrations. Fcp, 8vo. cloth, price 2s. 6d.

'We do not hesitate to say that by a careful use of this book a sound knowledge of the theoretical portion of botany may be obtained without tedious labour.'—*Mining Journal.*

Journal of Botany, British and Foreign. Vols. 1 to 5.

Edited by BERTHOLD SEEMANN, Ph.D., F.L.S., F.R.G.S. Beautifully Illustrated by Fitch. Price £1 5s. each.

The Journal consists of two distinct sections: the one devoted to General Botany, the other to the Botany of the British Isles. In both divisions Original Papers on subjects new to Science are given, illustrated either in the Text or by special Plates.

The Collector's Handy-Book of Algæ, Diatoms, Desmids, Fungi, Lichens, Mosses, &c.

With Instructions for their Preparation and the Formation of an Herbarium. Translated and Edited by the Rev. W. W. SPICER, M.A. With 114 Illustrations. Fcp. 8vo. cloth, price 2s. 6d.

Collection Catalogue for Naturalists.

A Ruled Book for keeping a permanent Record of Objects in any branch of Natural History, with Appendix for recording interesting particulars, and lettered pages for general Index. Strongly bound, 200 pages, 7s. 6d.; 300 pages, 10s.; and 2s. 6d. extra for every additional 100 pages. Working Catalogues, 1s. 6d. each.

A really good Catalogue, upon a simple and inexpensive plan, has long been a desideratum with naturalists and collectors. Few will originate or prepare a Catalogue for themselves, and it is a frequent matter of regret, that large and otherwise valuable collections are rendered comparatively useless for want of such a history. Again, how many naturalists pass through life, enriched with knowledge gleaned from Nature's inexhaustible store, but whose knowledge, alas! dies with them, for they leave behind them no record with their collections. This Catalogue commends itself to all naturalists, whether they be ornithologists, entomologists, botanists, conchologists, or mineralogists.

In addition to the ruled and printed form of Catalogue, there is a ruled and paged Appendix, and an Index lettered and ruled. The Appendix is intended to receive such notes and observations as are too long to be recorded in the column for remarks; and the Index at the end of the work is intended to furnish an easy means of reference to the contents of the Catalogue.

The Preparation and Mounting of Microscopic Objects.

By THOMAS DAVIES. Fcp. cloth, price 2s. 6d.

This Manual comprises all the most approved methods of mounting, together with the result of the Author's experience and that of many of his friends in every department of Microscopic Manipulation; and as it is intended to assist the beginner as well as the advanced student, the very rudiments of the art have not been omitted.

CHAP. I.—Apparatus. II.—To Prepare and Mount Objects Dry. III.—Mounting in Canada Balsam. IV.—Preservative Liquids. V.—Sections, and How to Cut them, with Remarks on Dissection. VI.—Injection. VII.—Miscellaneous.

'Nothing is more difficult to those who handle a microscope for the first time than to get their objects in a fit state for exhibition and preparation. They will, therefore, feel greatly indebted to Mr. Davies for a little book on 'The Preparation and Mounting of Microscopic Objects.' It is clear, full, and practical; and it soon reveals to the careful student the valuable fact that a great deal may be done with very simple appliances. We recommend it to young microscopists as a book which supplies a felt deficiency.' *Guardian.*

London: ROBERT HARDWICKE, 192 Piccadilly, W.

Half-Hours with the Microscope.

By EDWIN LANKESTER, M.D. F.R.S. Illustrated by 250 Drawings from Nature by Tuffen West.

CONTENTS.

Half-an-hour on Structure.	Half-an-hour at the Pond-side.
Half-an-hour in the Garden.	Half-an-hour at the Sea-side.
Half-an-hour in the Country.	Half-an-hour In-doors.

Appendix.—The Preparation and Mounting of Objects.

Third Edition, much enlarged, with full description of the various parts of the Instrument, price 2s. 6d. plain; 4s. coloured.

'The beautiful little volume before us cannot be otherwise than welcome. It is, in fact, a very complete manual for the amateur microscopist.....The 'Half-Hours' are filled with clear and agreeable descriptions, whilst eight plates, executed with the most beautiful minuteness and sharpness, exhibit no less than 250 objects with the utmost attainable distinctness.'—*Critic.*

Hardwicke's Science-Gossip:

A Monthly Medium of Interchange and Correspondence for Students and Lovers of Nature. Monthly, 4d.; Quarterly, 1s.; Annual Volume, in cloth, price 5s.

Hardwicke's Science-Gossip consists of:—

1. Short Articles of an interesting and light character,
   - On Animals, Birds, Reptiles, &c., their Habits, Haunts, Peculiarities, and Migrations; and on Stuffing and Preserving.
   - On the Finding, Collecting, and Preserving of the Microscopic Plants and Animals.
   - On Fish, Fish Culture, and Fishing.
   - On Plants, their Habitats, Time of Flowering, Soils where likely to be found; Peculiarities of Structure, &c.
   - On Geology; Excursions in interesting districts, and any subject relating to the Wonders, Peculiarities, or History of the World's Crust.
   - On the Habits, Mode of Capture, and Preservation of all sorts of Insects.
   - On the Cultivation of Ferns, Mosses, &c.
   - On the Various Plants and Animals capable of being kept and bred in Aquaria and Closed Cases.
   - On the Uses and Application of the Microscope, and on Mounting Objects. Discussions on any New Invention, or Improvement upon Old Instruments.

   In fact, on any subject which those who have a sincere love of nature delight to talk about, when they meet for a friendly gossip.
2. Hints and Suggestions, too small for Articles, but such as may prove useful either in Hunting, Preserving, Observing, or Understanding the various objects of Study.
3. Notes and Queries.
4. Notices to Correspondents.

Vol. 4 commenced January 1868. Vols. 1 to 3, containing a vast store of information price 5s. each, in handsome cloth covers. All the back numbers kept in print. Communications and Suggestions are invited.

At Home in the Wilderness:

Being Adventures and Experiences in Uncivilised Regions, in which it is shown where and when to encamp; how to equip and manage a train of pack mules; break, gear, and saddle wild horses; cross streams, build log shanties, trenail a raft, dig out a canoe or build it with bark or hide, manage dog sleighs, tramp on snow shoes, &c. By J. KEAST LORD, late of the British North American Boundary Commission. Crown 8vo. cloth, price 6s.

In the Plain and on the Mountain.

Guide for Pedestrians and Mountain Tourists in the Plain and on the Mountain. By CHARLES BONER, author of 'Chamois Hunting in Bavaria,' 'Forest Creatures,' &c. With illustrations of dress requisites, &c. Fcp. 8vo. price 2s.

'A little book which compresses into a very small space a great deal of good advice.'
Pall Mall Gazette.

'We recommend Mr. Boner's book to all travellers, either on mountain or plain.'
Athenæum.

The Book of Knots.

Illustrated by 172 Examples, showing the manner of making every Knot, Tie, and Splice. Price 2s. 6d.

'It is an honourable characteristic of our literature that it contains numerous admirable and complete treatises on many special subjects. Mr. Robert Hardwicke, publisher of many pleasant and useful works, has sent forth a 'Book of Knots,' by Tom Bowling, illustrated with one hundred and seventy-two diagrams, showing the manner of making every knot, tie, and splice, for the moderate price of half-a-crown, or nearly six knots a penny.'—*All the Year Round*, 23rd May 1868.

Holiday Excursions of a Naturalist;

Forming a Guide-book to the Natural History of the Inland and Littoral. Crown 8vo. cloth, price 7s. 6d.

PUBLICATIONS OF THE RAY SOCIETY.

British Hemiptera-Heteroptera.
By J. W. Douglas and John Scott. £1 10s.

Cirripedia Family.
By C. Darwin, Esq. 2 vols. £2 2s.

British Freshwater Polyzoa.
By Professor Allman. £1 11s. 6d.

Recent Foraminifera.
By Professor Williamson. £1 11s. 6d.

Oceanic Hydrozoa.
By Professor Huxley. £1 11s. 6d.

Organization of Trilobites.
From the German of Burmeister. 15s.

British Naked-eyed Pulmograde Medusæ.
By Professor E. Forbes. £1 1s.

The Spiders of Great Britain and Ireland.
By J. Blackwall, F.L.S. 2 vols. £3 13s. 6d.

Foraminifera.
By Dr. Carpenter. £1 11s. 6d.

Fructification of Higher Cryptogamia and Coniferæ.
From the German of Hofmeister. £1 5s. 6d.

Reptiles of India.
By Dr. Gunther. £2 2s.

British Spongiadæ.
By Dr. Bowerbank. 2 vols. £2 11s.

Steenstrup on Alternation of Generations.
15s.

British Entomostracous Crustacea.
By Dr. Baird. £1 1s.

British Angiocarpous Lichens.
By Rev. W. A. Leighton. 10s. 6d.

British Nudibranchiate Mollusca
A Monograph of the (with coloured drawings of every species). By Messrs. Alder and Hancock.

Part	I.	Imp. 4to.	£1	10	0	Part V.	Imp. 4to.	£1 10 0
,,	II.	,,	1	10	0	,, VI.	,,	1 1 0
,,	III.	,,	1	10	0	,, VII.	,,	1 1 0
,,	IV.	,,	1	10	0			

London: ROBERT HARDWICKE, 192 Piccadilly, W.

Meyen's Geography of Plants.

Translated from the German by Miss MARGARET JOHNSTON. 8vo. pp. 422, 10s. 6d.

The Greenland Whale.

Being a Translation of the Treatise published in the Danish Language, entitled OM NORDHVALEN (*Balæna Mysticetus*, Linn.), of D. F. ESCHRICHT og J. REINHARDT. By Dr. REINHARDT. Imp. 4to. pp. 312, 6 plates, price 24s.

On Pterylography.

Translated from the German. Edited by PHILIP LUTLEY SCLATER, M.A., Ph.D., F.R.S. Imp. 4to. 10 plates, 16s.

Recent Memoirs on the Cetacea.

By Professors ESCHRICHT, REINHARDT, and LILLJEBORG. Edited by W. H. FLOWER, F.R.S., &c. Imp. 4to. pp. 312, 6 plates, £1 4s.

The Shoulder Girdle and the Sternum.

By W. K. PARKER, Esq., F.R.S. Imp. 4to. illustrated with 30 coloured plates, £1 11s. 6d.

PUBLICATIONS OF THE ROYAL COLLEGE OF SURGEONS.

Descriptive Catalogue of the Physiological Series of Comparative Anatomy,

including the Organs of Motion and Digestion. Edited by Professor OWEN. Second Edition. Vol. I. 8vo. pp. 253, price 7s. 6d. 1852. Of the Osteological Series. By Professor OWEN. 2 vols. 4to. pp. 914, price 15s. 1853. Of the Histological Series. By Professor QUEKETT. Vol. I. Elementary Tissues of Vegetables and Animals. 18 Plates. 4to. pp. 305, price 15s. 1850. Vol. II. By Professor QUEKETT. Structure of the Skeleton of Vertebrate Animals. 18 Plates. 4to. pp. 248, price 15s. 1855. The Third Volume (Structure of the Dental Tissues) is in preparation. Of the Fossil Organic Remains of Mammalia and Aves. By Professor OWEN. 10 Plates, illustrating the Osteology of *Glyptodon*, *Diprotodon*, and *Nototherium*. 4to. pp. 391, price 10s. 6d. 1845. Of Reptilia and Pisces. By Professor OWEN. 4to. pp. 184, price 5s. 1854. Of Invertebrata. By Professor JOHN MORRIS and Professor OWEN. 4to. pp. 260, price 5s. 1856. Of Plants. By Professor QUEKETT and Professor MORRIS. 4to. pp. 94, price 3s. 6d. 1855.

Catalogue of the Specimens of Vertebrate Natural History

in Spirit. Edited by Professor QUEKETT. 4to. pp. 147, price 3s. 6d. 1859. Of Plants and Invertebrate Animals in a Dried State. Edited by Professor QUEKETT. 4to. pp. 514, price 10s. 6d. 1860. Of the Specimens of Entozoa. By Dr. T. SPENCER COBBOLD, F.R.S. 8vo. sewed, price 1s.

Memoir on the Pearly Nautilus

(*Nautilus pompilius*, Linn.), with Illustrations of its External Form and Internal Structure. By Professor OWEN. 8 Plates. 4to. pp. 63, price 5s. 1832.

Descriptive Catalogue of the Pathological Specimens.

By Messrs. STANLEY and PAGET. 5 vols. 4to.

Descriptive and Illustrated Catalogue of the Calculi and other Animal Concretions.

By Mr. T. TAYLOR.

Memoirs of Dr. Hugh Falconer.

Palæontological Memoirs and Notes of the late Hugh Falconer, A.M., M.D., Vice-President of the Royal Society; Foreign Secretary of the Geological Society of London; and for many years Superintendent of the H.E.I. Company's Botanic Gardens at Suharunpoor and Calcutta. With Biographical Sketch of the Author. Compiled and Edited by C. MURCHISON, M.D., F.R.S. 2 vols. 8vo. profusely illustrated, price £2 2s.

Old Bones; or, Notes for Young Naturalists.

By the Rev. W. S. SYMONDS, Rector of Pendock, Author of 'Stones of the Valley,' &c. With References to the Typical Specimens in the British Museum. Second Edition, much improved and enlarged, fully illustrated, fcp. 8vo. price 2s. 6d.

'The plan pursued by Mr. Symonds is a very simple one. He adopts the classification of Professor Owen, and carries the young naturalist from family to family, beginning with man and ending with the lowest fishes, making his own remarks as he goes on. We recommend these notes. The volume is neatly got up, and deserves a sale amongst the class for whom it is intended.'—*Athenæum.*

The Applications of Geology to the Arts and Manufactures.

Six Lectures delivered before the Society of Arts. By Professor D. T. ANSTED, M.A., F.R.S. Fcp. 8vo. cloth, illustrated, price 4s.

I. On the Formation of Natural Soils by Derivation from Rocks, and on the Improvement of Soils by the admixture of Minerals.

II. On Natural and Artificial Springs, and on the various Sources of Water Supply for Towns and Cities, in connection with the Geological Structure of the Vicinity.

III. On Mineral Materials used for the Purposes of Construction: Plastic and Incoherent Materials (Clays and Sands).

IV. On Mineral Materials (*continued*): Building Stones and Slates, and their Relative Value under given Circumstances of Exposure, and on Methods of Quarrying.

V. On Stratified Deposits of Minerals, as Coal and Iron Ore, usually obtained by Mining Operations, and on Mining Methods for such Deposits.

VI. On Metalliferous Veins for Lodes and their Contents, and on the Extraction of Metalliferous Minerals from Lodes.

'The science of geology largely engages the attention of the public; but persons are frequently deterred from the study of it by the dry and tedious style of writers dedicating their talent to its exposition. Professor Ansted has supplied a book which meets the public want.....The chapters relating to agricultural geology have an especial interest for farmers; but the whole are deeply interesting and worthy of recommendation.'

News of the World.

'Professor Ansted takes in hand a subject of some difficulty, but of universal importance. In this he describes the different kinds of mineral veins, their contents, and the methods adopted to extract those contents, and thus fitly concludes his labours in elucidation of the practical application of geological knowledge to economic purposes, especially in connection with the arts.'—*Daily News.*

The British Fossil Sponges

(An Illustrated Catalogue of). With Description and Figures of upwards of 200 Typical Specimens. By S. J. MACKIE. In 5 Parts at 5s. each. [*In preparation.*

Victoria Institute;

Or, Philosophical Society of Great Britain and Ireland: Journal of Transactions. Parts 1 to 4, 3s. 6d. each; Part 5, 4s.; Part 6, 3s. 6d.; Part 7, 5s.

Vis Inertia Victa;

Or, Fallacies affecting Science: an Essay towards increasing our knowledge of some Physical Laws, and a Review of certain Mathematical Principles of Natural Philosophy. By JAMES REDDIE. Together with The Mechanics of the Heavens and New Theories of the Sun's Electro-Magnetic and Repulsive Influence, by the same Author, bound together, demy 8vo. price 6s.

Alexander von Humboldt;

Or, What may be accomplished in a Lifetime. By F. A. SCHWARZENBERG. Crown 8vo. cloth, price 6s.

Metamorphoses of Man and Animals.

Describing the changes which Mammals, Batrachians, Insects, Myriapods, Crustacea, Annelids, and Zoophytes undergo whilst in the egg; also the series of Metamorphoses which these beings are subject to in after-life. Alternate Generation, Parthenogenesis, and General Reproduction treated *in extenso*. With Notes, giving references to the works of Naturalists who have written upon the subject. By A. De QUATREFAGES. Translated by HENRY LAWSON, M.D. Crown 8vo. cloth, price 6s.

'We have already said enough to show that the essay which Dr. Lawson has introduced to us in an English garb is one which marks a new era in the history of Embryology, and which presents to both general and scientific readers information which has been hitherto confined to the realms of dusty periodicals of all languages. "The Metamorphoses" is a work which tends to elevate the science of Biology, and deserves the attention of all classes of cultivated readers.'—*London Review.*

The Stream of Life on our Globe.

Its Archives, Traditions, and Laws, as revealed by Modern Discoveries in Geology and Palæontology. A Sketch in Untechnical Language of the Beginning and Growth of Life, and the Physiological Laws which govern its progress and operations. By J. L. MILTON, M.R.C.S. Second Edition, crown 8vo. cloth, 624 pp. price 6s.

CONTENTS.

The Beginning of Life
England long, long ago
The First Dwellers on Earth
The First Builders
The First Wanderers
The First Colonists of Sacred History
The First Language
The First Alphabet
The Battle of Life
Glances at the Laws of Life
Life in the Blood
Life in the Nerves
Life of a Giant
Life of Men of Genius
Influence of Smoking on Life and Race
Life in the Stars and Planets; or, Coloured Stars and their Inhabitants, &c. &c.

'A very agreeably-written record of some of the newest and most remarkable discoveries in geology, language, and physiology. The language is always untechnical and picturesque. It has the merit of inspiring interest in subjects often treated in a manner to repel the ordinary reader.'—*Lancet.*

Seven Essays on Universal Science,

A Series of; embracing some Investigations of the Mosaic Cosmogony, and the Interpretations of the Scriptures, with the object of Proving their Scientific Exactness. By THOMAS CLARK WESTFIELD, F.S.A. Price 7s. handsomely bound in cloth; or, in separate Essays, 1s. each.

Science and Practice in Farm Cultivation.

By Professor BUCKMAN, F.L.S., F.G.S.

CONTENTS.

1. How to Grow Good Root Crops
2. How to Grow Good Grass Crops
3. How to Grow Good Clover Crops
4. How to Grow Good Corn Crops
5. How to Grow Good Hedges
6. How to Grow Good Timber
7. How to Grow Good Orchards

Fully Illustrated. Complete in One Volume, cloth, 7s. 6d.

Picturesque Garden Plans.

A Practical Guide to the Laying-out, Ornamentation, and Arrangement of Villa Gardens, Town Squares, and Open Spaces, from a quarter of an acre to four acres; for the use of practical Gardeners, Architects, Builders, and Amateurs. By R. SIEBECK, Superintendent of Public Gardens, Vienna. Adapted to English Gardens, &c., by JOSEPH NEWTON, F.R.H.S. Fcp. folio, cloth, with 24 Coloured Plans, price 21s.

'The arrangement is concise and completely descriptive, so that any expert gardener can, by a very short study of the examples set forth, arrange or adorn large or small plots encircling new abodes, on naked down or barren waste.'—*Builder.*

Country Cottages.

A series of Designs for an Improved Class of Dwellings for Agricultural Labourers. By JOHN VINCENT, Architect. With numerous Plans, Elevations, &c. New Edition, folio, fully illustrated, price 12s.

Photographic Optics:

Including the Description of Lenses and Enlarging Apparatus. By D. VAN MONCKHOVEN, Ph.D. Crown 8vo. cloth, with more than 200 Illustrations, price 7s. 6d.

Book I.—Photographic Lenses.

Preliminary Ideas
Refraction of Light
Chromatics
Lenses
Aberrations
Spherical Aberrations
Description of Photographic Objectives
Employment of Photographic Objectives

Book II.—Apparatus for Enlargements.

On the Negative intended for Enlargement
Description of Apparatus for Enlargements
Theory of Formation of Enlarged Image in Woodward's Apparatus
Imperfections of Woodward's Apparatus
The Dyalitic Apparatus
Description and Setting-up of Dyalitic Apparatus, and of all Apparatus for Enlargements
Management of Enlarging Apparatus
Setting-up Enlarging Apparatus in Winter
Setting-up of Movable Dyalitic Apparatus
Application of Heliostat to Enlarging Apparatus
Setting-up of Heliostat with Enlarging Apparatus
Parallel Solar-Light Apparatus of Bertsch
Indirect Enlargement by the Sun or by Diffused Light
Application of Artificial Light to Enlarging Apparatus

Petroleum and its Products.

An Account of the History, Origin, Composition, Properties, Uses, and Commercial Value of Petroleum; the Methods employed in Refining it, and the Properties, Uses, &c., of its Products. By A. NORMAN TATE, F.C.S., Analytical Chemist, Hon. Sec. to the Liverpool Chemists' Association. Post 8vo. price 2s. 6d.

The Tannin Process.

By C. RUSSELL. Second Edition, with Appendix, fcp. cloth, price 2s. 6d. The Appendix separate, price 1s.

A Description of certain Dry Processes in Photography.

Specially adapted to the use of the Tourist; with Supplementary Notice of Plans, useful to the Scientific Traveller and Missionary. By GEORGE KEMP, M.D., St. Peter's Coll. Cambridge, Fellow of the Cambridge Philosophical Society. Post 8vo. price 2s.

Half-Hours with the Telescope:

Being a Popular Guide to the Use of the Telescope as a means of Amusement and Instruction. Adapted to inexpensive Instruments. By R. A. PROCTOR, B.A., F.R.A.S. Fcp. 8vo. cloth, with Illustrations on Stone and Wood, price 2s. 6d.

CONTENTS.

Half an hour on Structure of Instrument.
Half an hour with Orion, Lepus, Taurus, &c.
Half an hour with Lyra, Hercules, Corvus, Crater, &c.
Half an hour with Bootes, Scorpio, Ophinchus, &c.
Half an hour with Andromeda, Cygnus, &c.
Half hours with the Planets.
Half hours with the Sun, Moon, &c.

'It is crammed with starry plates on wood and stone, and among the celestial phenomena described or figured, by far the larger number may be profitably examined with small telescopes, and none are beyond the range of a good three-inch Achromatic. The work also treats of the construction of telescopes, the nature and use of Star Maps and other subjects connected with the requirements of amateurs ..... The book is full of "useful and interesting information," and will form a valuable companion to the various admirable handbooks for which Mr. Hardwicke enjoys so good a reputation.'

Illustrated Times.

The Astronomical Observer:

A Handbook for the Observatory and the Common Telescope. By W. A. DARBY, M.A., F.R.A.S., Rector of St. Luke's, Manchester. Embraces 965 Nebulæ, Clusters, and Double Stars. Royal 8vo. cloth, price 7s. 6d.

'I think the design of the work has been well carried out. The Catalogue will no doubt be very acceptable to the amateur observer desirous of obtaining a knowledge of practical astronomy, and it will also be useful in the library of the regular observatory.'

From the Earl of Rosse, K.P., F.R.S., &c.

Industries of Birmingham

And the Midland Hard-Ware Districts: their Resources, Products, and Industrial History. A Series of Reports collected by the Local Industries Committee of the British Association at Birmingham in 1865. Thick 8vo. pp. xiii.—721, price 14s.

'Mr. Timmins has gathered together a very full and complete record of Midland industry..... It is a book in which everybody will find something to interest him, and something worth knowing..... Birmingham is far more interesting to the stranger than many other manufacturing centres, because there is nothing monotonous about her industry. She is a thorough Briareus with a hundred, nay a thousand, hands, and every hand doing something different and something ingenious. Those who know nothing of her multifarious cleverness, except by hearsay, should read this book. We promise them that they will find it quite as interesting, and far more wholesome, than many of the flimsy works of travel and still flimsier fictions with which we are inundated.'

The Times.

The *Examiner* says:—'It is a work to be thankful for, and worth study at home and abroad. A wonderfully complete account of the trading life of a great English trading town, and is in its way the best addition that has been made to commercial literature for many a day.'

The *Society of Arts Journal* says:—'As an addition to the libraries of Mechanics' Institutions and Working Men's Clubs, not forgetting free libraries, it will be valuable, and will be received on the Continent with a hearty welcome.'

Report of the Proceedings at the British Association (Birmingham Meeting), 1865.

Carefully Collated and Revised by the various Speakers. Crown 8vo. price 5s.

Report of the Meeting at Nottingham, 1866.

Super-royal 8vo. price 6s.

The Cattle Plague.

With Official Reports of the International Veterinary Congresses, held in Hamburg, 1863, and in Vienna, 1865. By JOHN GAMGEE, Principal of Albert Veterinary College. Demy 8vo. 360 pp. price 21s.

Horse Warranty.

A Plain and Comprehensive Guide to the various Points to be noted, showing which are Essential and which are Unimportant. With Forms of Warranty. By PETER HOWDEN, V.S. Fcp. 8vo. cloth, price 2s. 6d.

Graceful Riding.

A Pocket Manual for Equestrians. By S. C. WAITE. With Illustrations. Fcp. 8vo. cloth, price 2s. 6d.

In the school, on the road, on the course, or across country, this little book will be invaluable; and we heartily recommend it.'—*Morning Post.*

Whist.

The Laws and Practice of Whist. By CELERES. As played at the London Clubs. With coloured Frontispiece, 16mo. cloth, gilt edges, price 2s. 6d.

'It is just the book that was required. The intrinsic worth of the book is to be found in the downright sensible practical advice contained throughout its pages, and to the lover of whist we strongly recommend the volume.'—*Field.*

One Hundred Double Acrostics.

A New Year's Gift. Edited by 'Myself.' 16mo. cloth, price 2s. 6d.

Autobiography of a Working-Man.

By ALEXANDER SOMERVILLE, 'One who has Whistled at the Plough.' Fcp. 8vo. price 2s. 6d.

Hardwicke's Elementary Books. Price Twopence each.

Under the above title is presented to the public a complete Library of Elementary Works adapted for the use of the people.

Thousands of people at present skilled as handicraftsmen, and as workers in the various arts and sciences of life, plod on from day to day, with some vague notion that they can improve their own particular calling; but it generally ends in nothing, because they are ignorant of the first principles of those laws which regulate the things in which they are engaged. It is a rare occurrence to meet with workmen who know anything beyond what they picked up in their apprenticeship, or obtained by imitating others more skilled than themselves.

It will be the aim of HARDWICKE'S ELEMENTARY BOOKS to teach these first principles.

No labour or expense will be spared to make the information of a thoroughly reliable character; and, where advisable, a free use of authentic illustrations will be brought to bear.

'Hardwicke's series of "Elementary Books of Science" at present include Optics, Hydraulics, Hydrostatics, Geography, Chemistry, Mechanics, and the parts vary in price from twopence to sixpence. Each part is a very admirable epitome of the subject it treats, and there is more reliable information in any one of these little pamphlets of a few pence than there is in many a costly volume. The woodcuts are in outline, or only slightly shaded, and their subjects are exceedingly well selected.'—*London Review.*

NOW READY.

Mechanics.

Fully illustrated by nearly 100 cuts. Two parts, 2d. each; complete, 4d.; bound in cloth, 6d.

Hydrostatics.

Fully illustrated. Complete, 2d.; in cloth, 4d.

Chemistry.

Three Parts, 2d. each; complete, 6d.; cloth, 8d.

Hydraulics.

Fully illustrated. Complete, 2d.; cloth, 4d.

Optics.

Fully illustrated. Complete, 4d.; cloth, 6d.

Pneumatics.

Fully illustrated, 2d.

Other Works of a similar character are in preparation, and will shortly be announced.

A Manual of Geography.

Being a Description of the Natural Features, Climate, and Productions of the various Regions of the Earth. By FRANCIS MORTON, C.E. Limp cloth, 1s.; bound in leather, with coloured Maps, 1s. 6d.; in paper, without Maps, 6d.

Mackenzie's Educational Books.

Intended for Schools or Self-instruction.

ALREADY PUBLISHED.

Mackenzie's Tables.

Commercial, Arithmetical, Miscellaneous, and Artificers'. Calculations in Bricklaying, Carpentry, Lathing, Masonry, Paper-hanging, Paving, Planting, Plastering, Slating, Tiling, Well-sinking, Digging, &c. &c. Fractions and Decimals. Forms of Receipts and Bills. Calculations on Man, Steam, Railways, Power, Light, Wind, &c. Language and Alphabets. Calendar of the Church. Scripture Money. Principal Foreign Moneys and Measures. Geographical and Astronomical Tables, &c. &c. Complete, price 2d.; cloth, 6d.

Murray's English Grammar.

Complete, word for word with the Shilling Editions. Price 2d.; cloth, 4d.

London: ROBERT HARDWICKE, 192 Piccadilly, W.

Mavor's Spelling.

With numerous Cuts. Price 4d.; or, two parts, 2d. each.

Walkinghame's Arithmetic.

Same as the Half-crown Edition. Price 4d.; or, two parts, 2d. each; cloth, 6d.

Short-Hand.

With Phrases and Exercises, to gain facility in the use of all the characters, by which perfection may soon be attained. Complete, price 2d.

Phrenology

Explained and Exemplified. Complete, price 2d.

Bookkeeping

By Single Entry, with explanations of Subsidiary Books, being a useful system for the Wholesale and Retail Shopkeeper. Complete, price 2d.

Elements of Arithmetic.

From the French of M. C. Briot. Translated by J. Spear, Esq. Crown 8vo. cloth, price 4s.

'The little book before us is a translation of a French school arithmetic, and we notice it especially in reference to the metric system, which is clearly explained in its pages, and put forward in the introduction as one of the prominent features of the work.'
Morning Star.

Mangnall's Questions, Complete, 1s.

The Cheap Edition of this valuable School Book is now ready. It has been carefully revised and brought up to the present time. It is well printed and strongly bound.

'Published in a compact form, neatly bound, and being condensed without being abridged, comes before us in a greatly improved form. Few books contain so much information in so small a space.'—*Portsmouth Guardian.*

Inventive Drawing.

A Practical Development of Elementary Design. By Edward Ball. Folio, boards, price 6s.

'We recommend Mr. Ball's book especially to the instructors of the very young, because we believe that the system upon which it is founded will produce power which in more advanced life will be invaluable to the student of free-hand drawing and ornamental design.'—*Midland Counties Herald.*

Method for Teaching Plain Needlework in Schools.

By a Lady. Price 2s. 6d. Illustrated by Diagrams and Samplars.

This useful method is based on *steps* which are *gradual*, *well defined*, and clear to the *perception*. It is calculated to ensure the improvement of each individual child, and, while it offers the necessary instruction to the less talented pupil, it enables the more clever one to attain the highest degree of perfection.

Our Schools and Colleges:

Particulars respecting Endowed Grammar Schools, Collegiate Schools, Proprietary Schools, Middle-class Schools, and other important Institutions, where the Young are trained for the Naval, Military, Civil Service, or Middle-class, and similiar Examination; as also Information respecting Colleges and Universities. By Herbert Fry. Crown 8vo. 3s. 6d.

The Royal Guide to London Charities.

Showing, in Alphabetical Order, the Name, Date of Foundation, Address, Object, Annual Income, Number of People benefited, Mode of Application to and Chief Officers of every Institution in London. By Herbert Fry. Published Annually, price 1s.

Dedicated by Express Permission to H.R.H. the PRINCE OF WALES.

The County Families;

Or, Royal Manual of the Titled and Untitled Aristocracy of the Three Kingdoms. It contains a complete Peerage, Baronetage, Knightage, and Dictionary of the Landed Commoners of England, Scotland, Wales, and Ireland, and gives a brief notice of the Descent, Birth, Marriage, Education, and Appointments of each Person, his Heir Apparent or Presumptive, a Record of the Offices which he has held, together with his Town Address and Country Residences. By EDWARD WALFORD, M.A., late Scholar of Balliol College, Oxford. 1,200 pages, 11,000 families. Price £2 10s.

'It possesses advantages which no other work of the kind that we know of has offered hitherto. Containing all that is to be found in others, it furnishes information respecting families of distinction which are not to be found in the latter. It will prove to be invaluable in the library and drawing-room.'—*Spectator.*

'To produce such a work in the perfection which characterises "County Families" must have been an almost Herculean task. It is sufficient for us to say that accuracy even in the minutest details appears to have been the aim of Mr. Walford, and the errors are so few and slight that they may readily be passed over.'—*Weekly Register.*

By the same Author, published Annually,

Hardwicke's Crown Peerage:

Containing a Peerage, Baronetage, and Knightage, complete in one volume; and giving the Birth, Accession, and Marriage of each Personage, his Heir (Apparent or Presumptive), Family Name, Political Bias, and Patronage; as also a brief Notice of the Offices which he has hitherto held, his Town Address and Country Residences. 540 pp. Elegantly bound, with gilt edges, price 5s. Also,

The Shilling Peerage,

The Shilling Baronetage,

The Shilling Knightage, and

The Shilling House of Commons.

Heraldry founded on Facts.

Or, *The Pursuivant of Arms.* By J. R. PLANCHÉ, Rouge Croix. Second Edition, with additional Notes and Illustrations. Demy 8vo. cloth, Illuminated Frontispiece, and more than 200 Illustrations from the most authentic sources, price 6s.

'The increased interest taken of late years in heraldry is evinced by the number of works which have appeared to elucidate it. Among these the first place must be assigned to Planché's "Pursuivant of Arms," a rigorously scientific examination into the origin and early history of coat-armour, in which everything is submitted to the test of a stern criticism. The author is a distinguished member of the English College of Arms, and has performed the difficult task of producing an Essay on heraldry full of learning and research, yet written in a sufficiently lively style to be read with delight by many who are not heraldic enthusiasts.'—*Edinburgh Review.*

A Corner of Kent.

Some Account of the Parish of Ash-next-Sandwich: its Historical Sites and existing Antiquities. By J. R. PLANCHÉ, Rouge Croix. Demy 8vo. illustrated, price 15s.

Within the Parish of Ash-next-Sandwich the Gauls found their most commodious haven; the Romans erected their most famous fortalice; the pagan Jute established his dominion; the holy Augustine planted the Cross. Many of the most celebrated names in the roll of our Norman ancestors are connected with its manorial records, and the greatest sovereigns of this country made its now almost deserted road the highway to conquest, returned by it in triumph, or displayed on it the pageantry of a peaceful progress.

Enshrined Hearts.

Enshrined Hearts of Warriors and Illustrious People. By EMILY SOPHIA HARTSHORNE. With Illuminated Initials, and Illustrated with numerous Engravings on Wood, Armorial Bearings, &c. &c. Beautifully printed in colours, price £1 1s.

London: ROBERT HARDWICKE, 192 Piccadilly, W.

How to Address Titled People.

Companion to the Writing-Desk; or, How to Address, Begin, and End Letters to Titled and Official Personages, together with Tables of Precedence, copious List of Abbreviations, Rules for Punctuation, and other useful information. Royal 32mo. price 1s.

'A word, and more than a word, of praise is due. Full information on every subject of importance to correspondents is afforded in it. The instructions on official points will not fail to be of importance to many persons unable to obtain the proper information from even much larger works of the same kind.'—*Court Journal.*

'This is one of the most useful little books we have for a long time seen.'—*Bra.*

An Index to the Pedigrees contained in the printed Heralds' Visitations, &c. &c.

By GEORGE W. MARSHALL, LL.M., of the Middle Temple, Barrister-at-Law. Demy 8vo. cloth, price 6s.

Peter Schlemihl.

From the German of ADALBERT VON CHAMISSO. Translated by Sir JOHN BOWRING, LL.D., &c. Crown 8vo. cloth, with Illustrations by George Cruikshank, price 2s. 6d.; the Illustrations on India paper, price 5s.

Hardwicke's Shilling Handy-Book of London.

An Easy and Comprehensive Guide to Everything worth Seeing and Hearing. Royal 32mo. cloth, price 1s.

CONTENTS.

Bazaars
Ball-rooms
Cathedrals
Dining-rooms
Exhibitions
Mansions of Nobility
Markets
Money-order Offices
Monuments and Statues
Museums
Music-halls and Concert-rooms
Out-door Amusements
Omnibuses
Palaces
Parks
Passport Offices
Picture Galleries' Regulations
Popular Entertainments
Police-courts
Prisons
Railway Stations
Steamboats
Theatres
Telegraph Offices, &c.

The Book of the Pike.

A Practical Treatise on the various methods of Jack Fishing, with an analysis of the Tackle employed, the History of the Fish, &c. Also a Chapter on Spinning for Trout in Lakes and Rivers. By H. CHOLMONDELEY-PENNELL, Author of 'The Angler Naturalist.' Crown 8vo. illustrated, price 5s.

Shooting Simplified.

A Concise Treatise on Guns and Shooting. By JAMES DALZIELL DOUGALL. Second Edition, Re-written and Enlarged, with a Special Chapter on Breech-Loaders. Fcp. 8vo. cloth, price 6s.

Essays and Reviews.

Their Origin, History, General Character, and Significance. Persecution, Prosecution, Judgment of the Arches Court, Review of Judgment. By the Rev. ROBERT BRUCE KENNARD, M.A., Rector of Marnhull, Dorset. Crown 8vo. cloth, price 6s.

A Tramp's Wallet.

Stored by an English Goldsmith during his Wanderings in Germany and France. By WILLIAM DUTHIE. Dedicated, by permission, to C. Dickens, Esq. Crown 8vo. cloth, price 3s. 6d.

Holiday Papers.

By HARRY JONES, M.A., Incumbent of St. Luke's, Berwick Street, Soho. Thirty-seven Papers. Crown 8vo. cloth, price 6s.

'Full of deep-toned feeling.'—*Bell's Messenger.*
'His anecdotes would have delighted White of Selborne.'—*London Review.*
'Easy and smart, sparkling and forcible, yet perfectly natural and sensible.'—*Patriot.*

Curiosities of Civilization.

Being Essays from the *Quarterly* and *Edinburgh Reviews*. By ANDREW WYNTER, M.D. Seventh Edition, crown 8vo. price 6s.

The London Commissariat	Lodging, Food, and Dress of Soldiers
Food and its Adulterations	The Electric Telegraph
Advertisements	Fires and Fire Insurance
The Zoological Gardens	The Police and the Thieves
Rats	Mortality in Trades and Professions
Woolwich Arsenal	Lunatic Asylums
Shipwrecks	

'We shall look in vain, for example, two centuries back, for anything like an equivalent to the volume before us. Some of the articles are mainly derived from observations made in the course of professional studies; others are at least cognate to the subjects which occupy a physician's hourly thoughts; all are more or less instructive as to certain phases of our civilisation, and the strange elements it holds in suspension. Some of the incidents are of unparalleled magnitude, quite as striking as anything contained in the wonder-books of our ancestors.'—*Times*.

Our Social Bees.

Pictures of Town and Country, and other Papers. By ANDREW WYNTER, M.D.

Containing articles amongst which will be found—

Mock Auctions	Candle-Making
Hyde Park	Woman's Work
Our Peck of Dirt	The Turkish Bath
Commercial Grief	Who is Mr. Reuter?
Orchards in Cheapside	A Suburban Fair
Needle-making	The Englishman Abroad
Preserved Meats	A Gossip about the Lakes
London Stout	Physical Antipathies
Wenham Lake Ice	Brain Difficulties

Crown 8vo. price 6s. Eighth Edition.

Also, uniform in size and price,

Our Social Bees. New Series.

Containing, amongst other articles—

Hedging against Fate	The School of Cookery
London Omnibuses	Sweets for the Million
Water Supply of London	Death in the Match-box
Buried History	Human Wasters
Our Furniture	The City Companies
Our once Fat Friend	Photo-Sculpture
My First Deal in Horse-flesh	'Old Clo''
Horses and Horse Copers	Longevity
Our Great Iron-workers	A Word about Wines
Machin	

'These papers are characterised by the same breadth of view, the same felicity of language, the same acuteness of thought, which distinguished the 'Curiosities of Civilisation.' So long as Dr. Wynter continues to write papers similar to those in the volume before us, and in "Curiosities of Civilisation," so long will the republication of those papers be welcomed by the public.'—*Standard*.

Subtle Brains and Lissom Fingers:

Being some of the Chisel-marks of our Industrial and Scientific Progress, and other Papers. By A. WYNTER, M.D. Crown 8vo. cloth, 6s.

Containing 39 Articles; amongst which will be found—

Fraudulent Trade Marks	Village Hospitals
A Day with the Coroner	Air Traction
Undersea Railroad	Illuminations
Vivisection	Boat-building by Machinery
Restoration of our Soil	Doctors' Stuff
Railways the Great Civilisers	Small-pox in London
Physical Education	Excursion Trains
Clerk of the Weather	Early Warnings, &c. &c.

London: ROBERT HARDWICKE, 192 Piccadilly, W.

Researches into the History of the British Dog.

From Ancient Laws, Charters, and Historical Records. With Original Anecdotes and Illustrations of the Nature and Attributes of the Dog, from the Poets and Prose Writers of Ancient, Mediæval, and Modern Times. By GEORGE R. JESSE. With 33 engravings, designed and etched by the Author. In two splendid Library volumes, price £1 12s.; India proofs, £2 2s.

A Treatise on Smoky Chimneys,

Their Cure and Prevention. By FREDERICK EDWARDS, Jun. Fifth Edition, revised and enlarged, price 1s. 6d. with Illustrations.

'We cordially recommend this successful attempt to teach a few plain, but too often neglected rules. The great charm of the treatise is its conciseness and practical usefulness. Attention to the facts Mr. Edwards has indicated in it will save landlords and householders a deal of trouble, expense, and anxiety.'—*Building News.*

On the Ventilation of Dwelling Houses,

And the Utilisation of Waste Heat from Open Fire-places. By FREDERICK EDWARDS, Jun. Royal 8vo. cloth, with numerous Illustrations, price 10s. 6d.

'The treatise has two great merits—it is thoroughly sensible and practical.'
Imperial Review.

The Influence of Railway Travelling on Public Health.

From the *Lancet.* Fcp. 8vo. cloth, price 1s.

'We strongly recommend the work to all who are connected with the management of railways, or in the habit of travelling by them. The mass of evidence goes to prove that whilst the actual danger of life in travelling by rail is comparatively small, that to health is, from various causes, considerable. But for the discussion of these and their remedies, we must refer the reader to the book itself.'—*Dispatch.*

Wines and other Fermented Liquors.

From the Earliest Ages to the Present Time. Dedicated to all Consumers in the United Kingdom. By JAMES RICHMOND SHEEN. Fcp. 8vo. cloth, price 5s.

The Common Sense of the Water Cure.

A Popular Description of Life and Treatment at a Hydropathic Establishment. By Captain J. H. LUKIS, late of the 61st Regiment, and the North Durham Militia. Crown 8vo. price 5s.

'We have seldom read a more amusing book than this. Capt. Lukis is a clever well-bred gentleman, who has found the greatest pleasure of his life in the strict discipline of hydropathy, and in this volume he chats pleasantly about his own experiences, and puts in a very popular form the chief arguments in favour of the water cure. There is not a dull page in the book.'—*Morning Herald.*

Special Therapeutics.

An Investigation into the Treatment of Acute and Chronic Disease by the Application of Water, the Hot-Air Bath, and Inhalation. By J. C. LORY MARSH, M.D., M.R.C.P. Crown 8vo. price 3s. 6d.

The Toilet and Cosmetic Arts

In Ancient and Modern Times; with a Notice of the Different Theories of Beauty, and allied Information, Social, Hygienic, and Medical, including Instructions and Cautions respecting the selection and use of Perfumes, Cosmetics, and other Toilet Articles, and very copious Formulæ for their Preparation. By A. J. COOLEY, Author of 'The Dictionary of Practical Receipts,' &c. One vol. crown 8vo. price 10s.

Also, in Two Vols. each Vol. sold separately.

Vol. I. History in Ancient and Modern Times. Price 5s.
Vol. II. Receipts for the Preparation of Skin Cosmetics, Hair Cosmetics, Tooth Cosmetics, Perfumes, and the various requisites connected with Health and Hygiene. Many hundreds of receipts. Crown 8vo. price 5s.

Bathing: How to do it, When to do it, and Where to do it.

By EDGAR SHEPPARD, M.D., Medical Superintendent of the Male Department, Colney Hatch Asylum. 8vo. sewed, price 1s.

Plain and Practical Medical Precepts.

Second Edition, revised and much enlarged. By ALFRED FLEISCHMANN, M.R.C.S. On a large sheet, price 4d.

The Home Nurse.

A Manual for the Sick Room. By ESTHER LE HARDY. Second Edition, fcp. 8vo. cloth, price 2s. 6d.

Air	Practical Duties	Setons, Issues
Cleanliness	Moral Duties	Blisters and Plasters
Dress	The Patient	Chamber of Death
Diet and Cookery	Visitors	&c. &c. &c.

'In our notice of the first edition, we expressed our approbation of the manner in which she had performed her task; and we are gratified to see that the useful lessons she inculcated both in regard to nursing and medical attendance have met with such general approval as to require another edition of her unpretending but really valuable volume.'
Lancet.

On Teething of Infants:

Its prevalent Errors, Neglects, and Dangers; their influence on the Health, and as causes of death of Children. Including the dangers of Teething Powders, Soothing Syrups, &c. By HENRY HAWKS, L.R.C.P. Edinburgh, M.R.C.S. England, &c. Illustrated by Cases. Fcp. 8vo. cloth, price 3s. 6d.

The Domestic Management of Infants and Children,

In Health and Sickness. By S. BARKER, M.D., Brighton. 8vo. price 5s. Also,

The Diet of Infancy and Childhood.

By S. BARKER, M.D. Demy 8vo. sewed, price 1s.

The Gastric Regions, and the Victualling Department.

By AN OLD MILITIA SURGEON. The whole outward and inward man, from the crown of his head to the corns on his little toes, all tell the sad tale of the Gastric Regions' Wrongs. Crown 8vo. cloth, price 2s. 6d.

'This is a most useful, and by no means a dull or heavy book.....The Old Militia Surgeon gives some most useful advice, in a pleasant practical manner, respecting different varieties of food and their effects upon the system.'—*Observer.*

The Foot and its Covering.

With Dr. Camper's work on 'The Best Form of Shoe,' translated from the German. By JAMES DOWIE. Fcp. 8vo. cloth, illustrated, price 2s. 6d. [*Reprinting.*

Australia for the Consumptive Invalid.

The Voyage, Climates, and Prospects for Residence. By I. BAKER BROWN, Jun. Crown 8vo. 5s.

Auvergne:

Its Thermo-Mineral Springs, Climate, and Scenery. A new Salutary Resort for Invalids. By ROBERT CROSS, M.D. With three tinted Lithographs, price 4s.

Sketches of Ceylon.

Sketches of the Inhabitants, Animal Life, and Vegetation, in the Lowlands and High Mountains of Ceylon, as well as the Submarine Scenery near the coast, taken in a Diving Bell. By Baron EUGENE DE RANSONNETT. With 26 large Chromolithographs, taken from life by the Author. Folio, £2 10s.

First Help in Accidents.

Being a Surgical Guide in the absence or before the arrival of Medical Assistance. For the use of the Public, especially for Members of both Military and Naval Services, Volunteers, and Travellers. By CHARLES H. SCHAIBLE, M.D., Ph.D., Royal Military Academy, Woolwich. Fully Illustrated.

Bites	Burns	Drowning	Scalds
Bleeding	Choking	Exhaustion	Sprains
Broken Bones	Cold	Hanging	Suffocation
Bruises	Dislocations	Poisoning	

And other Accidents where instant aid is needful. In Sup. royal 32mo. cloth, price 2s. 6d.

'A most useful and interesting little book, which is, besides, prettily got up, and contains some accurate and nice woodcuts. In 200 small pages we find, condensed, whatever can be done in case of accidents until the arrival of a professional helper; in fact, the work is a short but complete manual, and will prove of great service to military men, volunteers, and tourists..... The instructions are plain and to the point, and there is a welcome absence of technical terms.'—*Spectator.*

A Manual of Popular Physiology:

Being an Attempt to Explain the Science of Life in Untechnical Language. By HENRY LAWSON, M.D., Co-Lecturer on Physiology and Histological Anatomy in St. Mary's Hospital Medical School. Fcp. 8vo. with Ninety Illustrations, price 2s. 6d.

Man's Mechanism	Digestion	The Kidneys
Life	Respiration	Nervous System
Force	Heat	Organs of Sense
Food	The Skin	&c. &c. &c.

'Dr. Lawson has succeeded in rendering his manual amusing as well as instructive. All the great facts in human physiology are presented to the reader successively; and either for private reading or for classes, this manual will be found well adapted for initiating the uninformed into the mysteries of the structure and functions of their own bodies.' *Athenæum.*

Dr. Lankester on Food.

A Course of Lectures delivered at the South Kensington Museum. By E. LANKESTER, M.D., F.R.S., F.L.S. Crown 8vo. cloth, pp. 400, fully illustrated, price 3s.

Water	Alcohol—Wines, Spirits, and Beer
Salt—Mineral Food	Condiments and Spices
Heat-Givers—Oil, Butter, Fat	Tea, Coffee, and Chocolate
Flesh-formers—Animal Food	Tobacco and Opium

'Full of sound science, curious anecdote, and quaint illustration. Dr. Lankester has a singular power of illustrative keenness; and in the discursive lessons which he delivers on so many subjects, there is an overflowing wealth of minute collateral information which is always brought to the level of the last achievements of science.'—*Lancet.*

Domestic Medicines, their Uses and Doses,

In the absence of professional assistance, with Tables of Weights and Measures; the preparation of Beverages suitable for the Sick Room. Poisons and their antidotes. Sixth Thousand, 32mo. cloth, price 1s.

Dr. Lankester on the Uses of Animals

In Relation to the Industry of Man. By EDWIN LANKESTER, M.D., F.R.S. A Course of Six Lectures, delivered at the South Kensington Museum. Crown 8vo. pp. 350, cloth, fully illustrated, price 3s.

Silk	Soap	Insects
Wool	Waste	Furs
Leather	Sponges and Corals	Feathers, Horns, & Hair
Bone	Shell-fish	Animal Perfumes

'The information is presented in the most lucid, graceful, and entertaining manner.' *Economist.*

'Everyone who peruses them will be grateful to the author.' The history of those creatures whose products become through man's skill so useful to him is given with such charming feeling that the interest of the reader is attracted and enchained, whether he wills or no.'—*Era.*

MEDICAL & SURGICAL WORKS.

Surgical Appliances and Minor Operative Surgery.

By THOMAS ANNANDALE, F.R.C.S. Edinburgh. Fcp. 8vo. cloth, price 5s.

Chemistry.

By Professor BRANDE, D.C.L., F.R.S.L., and Professor ALFRED S. TAYLOR, M.D., F.R.S., F.R.C.P. Lond. Fcp. 8vo. cloth, 900 pages, price 12s. 6d.

'For clearness of language, accuracy of description, extent of information, and freedom from the pedantry and mysticism of modern Chemistry, no other text-book comes into competition with it.....The best guide to the study of Chemistry yet given to the world.' *Lancet.*

'Conceived and worked out in the most sturdy common-sense method, this book gives, in the clearest and most summary method possible, all the facts and doctrines of Chemistry, with more especial reference to the wants of the Medical Student.'—*Medical Times.*

On the Cure of Clubfoot, without Cutting Tendons.

By RICHARD BARWELL, F.R.C.S., Surgeon and Lecturer on Anatomy, Charing Cross Hospital. With 23 Photographs. Second Edition, greatly enlarged, crown 8vo. 7s. 6d. By the same Author,

A Treatise on Diseases of the Joints.

Illustrated by Engravings on Wood. Demy 8vo. cloth, price 12s. Also,

Causes and Treatment of Spinal Curvature.

Crown 8vo. with Woodcuts, price 6s.

Essays and Reports on Operative and Conservative Surgery.

By R. G. H. BUTCHER, M.D., Surgeon and Lecturer on Clinical Surgery, Mercers' Hospital, Dublin. 8vo. cloth, profusely Illustrated by Chromo-lithography, price £1 1s.

On Inhalation as a means of Local Treatment of the Organs of Respiration by Atomised Fluids and Gases.

By HERMANN BEIGEL, M.D., L.R.C.P. 8vo. cloth, illustrated, price 6s.

On Surgical Diseases of Women.

By I. BAKER BROWN, F.R.C.S. (by Exam.), Surgeon to the London Surgical Home. Third Edition, revised and enlarged, demy 8vo. price 15s. By the same Author,

On Ovarian Dropsy.

Its Nature, Diagnosis, and Treatment. The Result of Thirty Years' Experience. Post 8vo. cloth, price 7s. Also,

On Scarlatina and its Treatment.

Second Edition, fcp. 8vo. cloth, price 3s.

On Malaria and Miasmata,

And their Influence in the production of Typhus and Typhoid Fevers, Cholera, and the Exanthemata. Founded on the Fothergillian Prize Essay for 1859. By the late T. HERBERT BARKER, M.D., F.R.S. Edin. 8vo. cloth, price 8s. Also,

On the Hygienic Treatment of Infants and Children.

Diet, Temperature, Air, Sleep, Bathing, Light, Exercise and Amusements, Nursery and Nursemaids, Vaccination, Dentition, Education, &c. 8vo. cloth, price 5s.

The Ophthalmoscope:

Its Varieties and its Uses. Translated from the German of ZANDER by R. B. CARTER, F.R.C.S. Eng. (by Exam.). With Notes and Additions. 68 Woodcuts and 3 beautiful Coloured Chromo-lithographs, royal 8vo. cloth, price 8s.

On the Arcus Senilis; or Fatty Degeneration of the Cornea.

By EDWIN CANTON, F.R.C.S., Surgeon to the Charing Cross Hospital. With numerous Illustrations. 8vo. cloth, price 10s. 6d.

Treatise on Diseases of the Eye.

Including the Anatomy of the Organ by CARL STELLWAG VON CARION, M.D., Professor of Ophthalmology in the Imperial University of Vienna. Translated from the German and Edited by CHARLES E. HOCKLEY, M.D., and D. B. ST. JOHN ROOSA, M.D. With Appendix. Demy 8vo. illustrated, price 30s.

The Pill-Book;

Or, Pills, Boluses, Globules, Grains, and Granules—Pharmacopœial, Hospital, and Magistral; their Preparation, Formulæ, Doses, Leading Uses, and Synonyms, including Quack Medicines. By ARNOLD J. COOLEY, Author of 'Toilet and Cosmetic Arts,' &c. Crown 8vo. cloth, price 2s.

By the same Author,

The Mixture-Book;

Or, Mixtures Pharmacopœial, Hospital, and Magistral; their Preparation, Formulæ, Doses, Leading Uses, and Synonyms. Crown 8vo. price 1s.

The Chemical Processes of the British Pharmacopœia,

And the Behaviour with Re-agents of their Products. By HENRY J. CHURCH, F.C.S. Fcp. 8vo. price 3s.

By the same Author,

Carbolic Acid as a Disinfectant,

And as a means of preventing the spread of the Cattle disease. 8vo. sewed, price 1s.

Disinfection and the Prevention of Disease.

By HENRY BOLLMAN CONDY. 8vo. sewed, price 1s.

Also,

Air and Water, their Impurities and Purification.

8vo. cloth, price 3s. 6d.

On Joint Diseases,

Their Pathology, Diagnosis, and Treatment; including the nature and treatment of Deformities and Curvatures of the Spine. By HOLMES COOTE, F.R.C.S. 8vo. cloth, price 9s.

Varicocele

(Clinical Lecture on) Delivered at the Lock Hospital. By WALTER COULSON, F.R.C.S., Surgeon to the Lock Hospital and St. Peter's Hospital. Crown 8vo. price 2s. 6d.

Parturition and its Difficulties.

With Clinical Illustrations and Statistics of 13,783 Deliveries. By J. HALL DAVIS, M.D., F.R.C.P., President of the Obstetrical Society. New Edition, revised and enlarged, crown 8vo. cloth, price 7s. 6d. By the same Author,

Flexions of the Uterus.

With Notes of the Ovarian and other Diseases treated in the Female Ward, Middlesex Hospital, July to July 1863-64. Price 2s. 6d.

London: ROBERT HARDWICKE, 192 Piccadilly, W.

Prostitution Medically Considered,

With some of its Social Aspects. Read before the Harveian Medical Society. By CHARLES DRYSDALE, M.D. 8vo. sewed, price 1s.

Gleet:

Its Pathology and Treatment. With Memoir on the Treatment of Stricture of the Urethra by Subcutaneous Division. By HENRY DICK, B.A., M.D., Surgeon to the National Orthopædic Hospital. Second Edition, with Woodcuts, price 5s. 6d.

On Flooding after Delivery,

And its Scientific Treatment. With a special Chapter on the Preventive Treatment. By LUMLEY EARL, M.D. Fcp. 8vo. price 5s.

On the Safe Abolition of Pain in Labour and Surgical Operations

by Anæsthesia with Mixed Vapours. By ROBERT ELLIS, M.R.C.S., L.S.A. Crown 8vo. cloth, price 2s. 6d.

On Penetrating Wounds of the Chest.

Founded on Actual Observations in the Camp General Hospital before Sebastopol. By PATRICK FRASER, M.D. Demy 8vo. cloth, price 5s.

Camp Diseases.

Contributions relating to the Causation and Prevention of Disease, and to Camp Diseases; together with a Report of the Diseases, &c. among the Prisoners at Andersonville, Ga. Edited by AUSTIN FLINT, M.D. In 1 vol. 8vo. bound in cloth, £1 10s.

Skin Diseases:

Their Description, Pathology, Diagnosis, and Treatment, with copious Formulæ. By TILBURY FOX, M.D., M.R.C.P. 8vo. cloth, price 7s. 6d. Also,

Skin Diseases of Parasitic Origin:

Their Nature and Treatment, including the Descriptions and Relations of the Fungi found in Man. With Plates, 8vo. cloth, price 7s. 6d.

Treatment of Diseases of the Skin.

By WILLIAM FRAZER, M.D. Fcp. 8vo. price 3s.

On Diseases of the Kidney, and Dropsy.

By Dr. S. J. GOODFELLOW, M.D., F.R.C.P., Senior Physician to the Middlesex Hospital, and Lecturer on Medicine at the Middlesex Hospital Medical School. Crown 8vo. price 7s. 6d. With Illustrations from Nature by Tuffen West.

On Epidemic Cholera and Diarrhœa:

Their Prevention and Treatment by Sulphur. Third Edition. By JOHN GROVE, M.D., M.R.C.S., &c. Price 1s. By the same Author,

Epidemics Examined and Explained.

8vo. cloth, price 5s.

Dr. Grove's System of Medical Book-Keeping.

Only three books required, and no posting necessary. The complete set, suitable to carry a large practice about three years, £1 14s. 6d. Prospectus and Examples gratis on application.

On Diseases of the Stomach:

By S. O. HABERSHON, M.D., F.R.C.P., Physician to and Lecturer on Materia Medica and Therapeutics at Guy's Hospital, &c. Crown 8vo. price 6s. Contents: Dyspepsia from—

An Essay on some Varieties and Effects of Cancerous Disease of Bone.

By WM. HICKMAN, M.B., F.R.C.S., Surgeon to the Western General Dispensary. 8vo. illustrated, 3s. 6d.

On the Use of Artificial Teeth,

In the Prevention of Indigestion, and the Cure of Diseases due to Imperfect Nutrition. By ROBERT T. HULME, M.R.C.S.E. Crown 8vo. cloth, price 2s. 6d.

The Laryngoscope.

Directions for its Use, and Practical Illustrations of its Value in the Diagnosis and Treatment of Disease of the Throat and Nose. By GEORGE JOHNSON, M.D., M.R.C.P., Professor of Medicine in King's College. Crown 8vo. price 2s. 6d.

On the Management of Labour in Contracted Pelvis.

A Thesis which obtained the first prize from the Faculty of Medicine of Paris. By WILLIAM H. JONES, M.D. Paris, M.R.C.S. Eng. Demy 8vo. cloth, price 4s.

Elements of the Anatomy and Physiology of the Teeth.

By HENRY T. KEMPTON, L.D.S.R.C.S., F.L.S. 8vo. cloth, price 7s. 6d.

Via Medica:

A Treatise on the Laws and Customs of the Medical Profession, in relation especially to Principals and Assistants, with Suggestions and Advice to Students on Preliminary Education. By J. BAXTER LANGLEY, M.R.C.S., F.L.S. Crown 8vo. cloth, price 3s.

The Optical Defects of the Eye.

Near Sight, Aged Sight, Weak Sight and Squint. By J. Z. LAURENCE, M.B., F.R.C.S. 80 woodcuts, 8vo. price 6s.

Ophthalmic Surgery.

A Handy-Book for Practitioners. By J. Z. LAURENCE and R. C. MOON. Illustrated, 8vo. cloth, price 6s.

Portrait of Baron Liebig.

From a Negative taken expressly for the Publisher. Mounted on cardboard, price 10s. 6d.; in elegant gilt frame, price 21s.

The Laryngoscope:

Its Use in Throat Diseases. With an Appendix on Rhinoscopy. By MORELL MACKENZIE, M.D. Lond., M.R.C.P., Physician to the Hospital for Diseases of the Throat, and Assistant-Physician and Co-Lecturer on Physiology at the London Hospital. New edition, full illustrated, cloth, price 6s.

Enlarged Tonsils,

And their Treatment without Cutting. Price 1s.

The Modern Treatment of Diseases of the Skin:

Being an Epitome of the Treatment now in use by the most eminent authorities on the subject, both in England and on the Continent. By J. L. MILTON, M.R.C.S., Surgeon to St. John's Hospital for Diseases of the Skin. Demy 8vo. price 3s. 6d.

Electro-Physiology and Therapeutics.

From a Study of the Electrical and other Physical Phenomena of the Muscular and other Systems during Health and Disease, including the phenomena of the Electrical Fishes. By CHARLES E. MORGAN, A.B., M.D. 8vo. cloth, price 30s.

On Shock after Surgical Operations and Injuries.

With special reference to Shock caused by Railway Accidents. By EDWIN MORRIS, M.D., F.R.C.S. Oxon. Crown 8vo. cloth, price 3s. 6d.

Osteology for Students:

A concise Description of the Human Skeleton, adapted for the use of Students in Medicine, accompanied by an Explanatory Atlas of Plates. By ARTHUR TREHERN NORTON, Assistant-Surgeon to St. Mary's Hospital, and Assistant-Lecturer and Demonstrator of Anatomy at the Medical School. 8vo. cloth, price 7s. 6d. 2 vols. complete.

The Ward Manual;

Or, Index of Surgical Disease and Injury. For the use of Students. By T. W. NUNN, F.R.C.S., Surgeon to the Middlesex Hospital. Limp cloth, price 2s.

Handbook of the Sphygmograph.

Being a Guide to its Use in Clinical Research. By J. BURDON SANDERSON, M.D. F.R.S., Physician to the Hospital for Consumption, Assistant-Physician to Middlesex Hospital, and Joint-Lecturer on Physiology in the Middlesex Hospital Medical College. Crown 8vo. cloth, price 8s. 6d. Illustrated.

Surgical Experiences:

The Substance of Clinical Lectures. By SAMUEL SOLLY, F.R.S., Senior Surgeon to St. Thomas's Hospital, Member of the Council, and late Professor of Anatomy and Surgery in the Royal College of Surgeons, &c., President of the Medico-Chirurgical Society, &c. Demy 8vo. cloth, price 12s. 6d. By the same Author,

The Human Brain:

Its Configuration, Structure, and Physiology; Illustrated by References to the Nervous System in the Lower Orders of Animals. By SAMUEL SOLLY, F.R.S., Senior Surgeon to St. Thomas's Hospital, Member of the Council, and late Professor of Anatomy and Surgery in the Royal College of Surgeons, &c. 8vo. cloth, 7s. 6d.

'We have perused the work with much attention and no inconsiderable degree of gratification.'—*London and Edinburgh Philological Magazine.*

'Excellent in its conception, perspicuous in its style, and lucid in its descriptions.'
Medical Chirurgical Review.

Clinical Notes on Uterine Surgery:

With Special Reference to the Management of the Sterile Condition. By J. MARION SIMS, M.D., late Surgeon to the Woman's Hospital, New York. 8vo. fully illustrated, price £1 1s.

On Lithotomy.

By WILLIAM F. TREVAN, B.A., F.R.C.S., Surgeon to the West London Hospital and to St. Peter's Hospital, and Lecturer on Anatomy at Westminster Hospital. Demy 8vo. price 1s.

Chronic Diseases of the Larynx,

With Special Reference to Laryngoscopic Diagnosis and Local Therapeutics. By Dr. ADELBERT TOBOLD, translated by G. M. BEARD, A.M., M.D. With 44 engravings on wood, price 16s.

Trousseau's Clinical Medicine.

Translated and Edited, with Notes and Appendices, by the late P. VICTOR BAZIRE, M.D. London and Paris, Assistant-Physician to the National Hospital for the Paralysed and Epileptic. Part 1 to 3, 4s. each; Vol. I. bound in cloth, price 14s.

A few copies of the first part are still on sale. The work is being now brought out by the New Sydenham Society. All who have bought the early parts as published by Mr. Hardwicke will be able to get the completion from him either direct or through their bookseller in the ordinary way.

Spinal Debility:

Its Prevention, Pathology, and Cure, in relation to Curvatures, Paralysis, Epilepsy, and various deformities. By EDWARD W. TUSON, F.R.C.S. Demy 8vo. cloth, price 5s. illustrated.

On Uncontrollable Drunkenness,

Considered as a form of Mental Disorder. With Suggestions for its Treatment, and the Organisation of Sanatoria for Dypsomaniacs. By FORBES WINSLOW, M.D., D.C.L. Oxon, &c. 8vo. 1s.

On Rupture, Inguinal, Crural, and Umbilical.

The Anatomy, Pathology, Diagnosis, Cause, and Prevention; with New Methods of effecting a Radical and Permanent Cure. Embodying the Jacksonian Prize Essay for 1861. By JNO. WOOD, F.R.C.S. Eng. (Exam.) Demonstrator of Anatomy at King's College, London; Assistant-Surgeon to King's College Hospital. With numerous Illustrations by Bagg. 8vo. cloth, 12s. 6d.

THE POPULAR SCIENCE REVIEW:

A Quarterly Summary of Scientific Progress and Miscellany of Entertaining and Instructive Articles on Scientific Subjects. Established 1861. Edited by HENRY LAWSON, M.D.

Articles by the following Contributors have already appeared:—

Adams, A. Leath, M.A., M.D., F.L.S.
Migrations of European Birds.
The Bone Caverns of Gibraltar, Malta, and Sicily.

Ansted, Professor, F.R.S., F.G.S.
Artificial Light.
Caverns and their Contents.
On the Physical Geography of the Ionian Islands.
Metamorphism of Rocks.
On Lake Haslua, illustrated.
On the Solfataras and Fumaroles in the Neighbourhood of Naples.
The Eruption of Santorin, illustrated.
The Hurricane, the Typhoon, and the Tornado.

Anstie, Dr.
What is a Stimulant?

Baird, Dr., F.L.S.
Our Fresh-water Entromostracas, Shell-Insects or Water Fleas, illustrated.

Barrett, W. F.
Glaciers and Ice, illustrated.
On Sensitive Flames, illustrated.

Bastian, Dr., F.R.S.
Free Nematoids, illustrated.

Bate, Spence, F.R.S.
An Attempt to approximate the Date of the Flint Flakes of Devon and Cornwall, illustrated.

Beale, Dr. Lionel, F.R.S.
On the Highest Magnifying Powers and their Uses.
Entozoon-like Bodies in the Muscles of Animals destroyed by Cattle Plague, illustrated.

Blackwall, John, F.L.S.
Our House-Spiders.

Bond, Dr.
Bodily Work and Waste.
The Geology of Mineral Springs, illustrated.

Breen, the late James
The Great Comet of 1861, illustrated by the Author.
The Sun and Solar Phenomena, with a coloured plate.
Mars, with a tinted and coloured plate.
The Telescope.
The Moon, illustrated.

Buckman, Professor.
On Corn, illustrated.
On Grass, illustrated.
The British Oak, with two page illustrations.
On the Morphology of Vinca Minor (Small Periwinkle), with page plate.

Carruthers, Wm.
The Botany of a Coal Mine, illustrated.

Chambers, G. F., F.R.A.S.
Optical Phenomena of the Atmosphere.
Thermometry.
How to Study Meteorology, illustrated.
Fitzroy Weather Forecasts, illustrated.

Church, Professor.
The Food of Plants.

Cobbold, Dr. Spencer, F.R.S.
Vegetables, Fruit, and Water as Sources of Intestinal Worms, illustrated.

Cooke, M. C.
Microscopic Fungi, Parasitic on Living Plants, with 7 pages of coloured illustrations.
Darwin's Observations on the Physiology of the Process of Fertilisation in Plants, illustrated.
How to Dissect a Flower, illustrated.

Coultas Harland.
Winter Life of Plants, illustrated.
On the Origin of our Kitchen-Garden Plants.

Crookes, Wm., F.R.S.
The Breath of Life.
Photographic Printing and Engraving, with a Photograph of a complete page of *The Times* printed from stone.

Dawkins, W. Boyd, M.A., F.R.S.
The Former Range of the Reindeer in Europe.
Range of the Mammoth.

Debus, H., F.R.S.
On the Absorption and Radiation of Heat, with two page illustrations.

De Quatrefage, A.
The Phosphorescence of the Sea, illustrated.

Divers, Dr.
What is a Tonic?
On Water Filters, illustrated.

London: ROBERT HARDWICKE, 192 Piccadilly, W.

Popular Science Review—continued.

Forbes, David, F.R.S.
The Microscope in Geology, illustrated.
Chemistry and Geology.

Foster, Professor.
On the Electrical Principles of the Atlantic Telegraph, illustrated.

Fripp, Dr.
On the Light-Emitting Apparatus of the Glowworm, illustrated.
Genesis or Parthenogenesis.
Recent Discoveries in Insect Embryogeny, illustrated.

Glaisher, James, F.R.S.
Balloon Ascents, and their Scientific Importance, illustrated.

Gore, George, F.R.S.
The Application of Science to Electro-Plating, with a page plate.

Gosse, P. H., F.R.S.
The Crown Animalcules, with illustrations by the author.
The Flower Animalcules, illustrated by the author.
The Builder Animalcules, with a page plate.
Contributions to the History of the Rotifera, or Wheel-Animalcules—The Flexible Creepers (Notommatina), with page plate.

Gray, Dr. J. E., F.R.S.
Venus's Flower-Basket (Euplectella), illustrated.

Gulliver, Professor, F.R.S.
On the Nature and Diagnostic Value of Raphides and other Plant Crystals.
Plants Known by their Pollen-grains and other Cells.

Henslow, the Rev. G., M.A., F.L.S.
Botanical Exercises.
On the Phenomena of Motion and Sensitiveness in Climbing Plants, with page illustration.
On Hybridisation among Plants.

Hicks, Dr. Braxton, F.R.S.
On the Difficulties of Identifying many of the Lower Kinds of Algæ, with coloured plate.
On the Volvox Globator, with coloured plate.
On the Mode of Growth of some of the Algæ, illustrated.

Hogg, Jabez, F.L.S.
The Common Truffle, with a page plate.
The Vinegar Eel (Anguillula Aceti), with tinted plate.
Colour-Blindness, with page plate.

Hooker, Dr., F.R.S.
Struggle for Existence among

Houghton, the Rev. W., F.L.S.
Our Fresh-Water Polyzoa, two page plates.
Insects Injurious to the Turnip Crops, illustrated.
Hydræ; or, Fresh-Water Polypes, with page plate.
Caddis-Worms, and their Metamorphoses, with page plate.

Hull, Edward, F.G.S.
Raised Beaches, and their Origin, with page plate.
Modern Views of Denudation, illustrated.

Hunt, Robert, F.R.S.
Iron and Steel.
Solar Chemistry, with coloured plate.
Light and Colour, with coloured plate.
The Physics of a Sunbeam, with coloured plate.
The Source of Heat in the Sun, illustrated.
The Physical Phenomena of other Worlds, with coloured plate.
Atlantic Telegraphy, illustrated.
'A Message from the Stars.'
The Science of a Snowflake, illustrated.

Huxley, Professor, F.R.S.
Connecting Link between Reptiles and Birds, two page plates.

Jones, Professor T. Rupert, F.G.S.
On the Oldest Known Fossil (Eozoon Canadense), illustrated.

Lankester, Dr., F.R.S.
On Cotton, illustrated by Tuffen West.
On Fresh Air.
On Proper Clothing.
On Good Food.
On Pure Water.

Lankester, E. Ray.
Tubifex Rivulorum, the Red Worm of our Rivers, with coloured plate.
The Old Red Sandstone Fishes of England, with tinted illustration.
On the Microscopic Anatomy of an Insect Larva (Corethra Plumicornis), illustrated.
On the Movements of the Diatomaceæ, with coloured plate.
On the Planariæ of our Ponds and Streams, illustrated.

Lankester, Mrs.
The Daisy, illustrated.
The White Clover, with two page plates.
The Mistletoe and Parasitic Plants, with page plate.

Lawson, Dr.
Herrings and Herring-Fishing.
Oysters and Oyster-Culture, with page illustration.
Recent Investigations into the Natural History of the Red Coral, illustrated.
Is the Whitebait a Distinct Species? illustrated.
Photography, and some of its Applications.
The Graphotype, illustrated.
Ventilation and Ventilators, illustrated.

idon: ROBERT HARDWICKE, 192 Piccadilly, W.

Popular Science Review—continued.

Lewes, G. H.
The Reflex Theory.

Liebig, Baron.
On the Action of Manures.
Soup for Children.
Artificial Mothers' Milk.
On Coffee.

Mackie, S. G., F.G.S.
Fossil Birds, with page plate.
The Metropolitan Main Drainage Works, with a map of the works.
The Pneumatic Despatch, illustrated.
Extraordinary Ships, illustrated.
The Eruption of Etna, with tinted plate.
New Electro-Magnetic Machines, illustrated.

Masters, Dr., F.L.S.
Why the Leaves Fall.
Sensitive Plants, with page plate.

Morris, Professor, F.G.S.
The Gems and Precious Stones of Great Britain, with coloured plate.

Patterson, Robert, F.R.S.
On Sponges, with page plate.

Proctor, Richard A., B.A., F.R.A.S.
How to Work with the Telescope, illus.
The Planet Mars in January 1867, illus.
Jupiter without his Satellites, illustrated.
The Total Eclipse of August 17th, 1868, illustrated.

Richardson, Dr. B. W., F.R.S.
Greek Fire: its Ancient and Modern History.
Waves of Heat and Waves of Death.
Ozone in relation to Health and Disease.
Sun Force and Earth Force.
Physics of the Brain.

Samuelson, James.
The Lowest Forms of Life. With illustrations by the author and Dr. J. B. Hicks.
The West Coast of Equatorial Africa, with a coloured map.
Primitive Astronomy, with two coloured illustrations by the author.
Barmouth and its Scientific Attractions, with a tinted illustration.

Seemann, Dr., F.L.S.
Australia and Europe formerly One Continent, with coloured plates.

Sorby, H. C., F.R.S.
On the Construction and Use of the Spectrum Microscope, with a page plate.

Unwin, W. C.
The Britannia and Conway Tubular Bridges, illustrated.

Voelcker, Professor, F.C.S.
On Milk and its Adulteration.

Walker, Charles V., F.R.S.
Train-Signalling in Theory and Practice, illustrated.

Williamson, Professor, F.R.S.
The Anatomy and Physiology of the Foraminifera, illustrated.
The Amœbæ: its Structure, Development, and Habits. Illustrated.
The Common Fresh-water Sponge, illus.

In addition to Articles which are of abiding interest, the Popular Science Review contains a complete Record of progress in every Department of Science, including

Astronomy	Geography	Microscopy
Botany	Geology	Photography
Chemistry	Mechanics	Physics
Ethnology	Medical Science	Zoology
	Metallurgy	&c. &c. and

Sciences applied to the Arts, Manufactures, Commerce, and Agriculture.

The early numbers having been reprinted, Vols. 1 to 6 may be had, price £3 14s. 6d.; in cloth, £4 12s. 6d. Vol. 7 commenced January 1868.

Published Quarterly, price 2s. 6d.; Annual subscription, 10s.

Mr. HARDWICKE begs to inform Authors of Works on Natural History, Travel, General Science, and Miscellaneous Literature, that he has at his command the requisite means for bringing all Works published by him prominently before the Public, both at home and abroad. Being practically acquainted with printing, and having been many years engaged in business requiring an intimate knowledge of the best modes of Illustration, he is enabled to offer great facilities to Gentlemen who entrust their Works to him.

Estimates of Cost, Terms of Publishing, and other particulars, on application.

LONDON:
192 PICCADILLY, W.

W. BOWER & SON